

© 2007

SHELLEY WALTONEN-MOORE

ALL RIGHTS RESERVED

A GROUNDED THEORY OF ONLINE GROUP DEVELOPMENT
AS SEEN IN ASYNCHRONOUS THREADED DISCUSSION BOARDS

A Dissertation

Presented to

The Graduate Faculty of The University of Akron

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

Shelley Waltonen-Moore

August, 2007

A GROUNDED THEORY OF ONLINE GROUP DEVELOPMENT
AS SEEN IN ASYNCHRONOUS THREADED DISCUSSION BOARDS

Shelley Waltonen-Moore

Dissertation

Approved:

Advisor
Dr. Qetler Jensrud

Committee Member
Dr. Evangeline Newton

Committee Member
Dr. Denise Stuart

Committee Member
Dr. Sandra Coyner

Committee Member
Dr. John Savery

Accepted:

Interim Department Chair
Dr. Bridgie Ford

Dean of the College
Dr. Patricia A. Nelson

Dean of the Graduate School
Dr. George R. Newkome

Date

ABSTRACT

This research developed a model of how learners in an e-learning environment evolved into a learning community despite their temporal and geographical separation from each other. The constant comparative method of analysis was used throughout open, axial, and selective coding procedures akin to the Grounded Theory methodology (Strauss & Corbin). Microscopic analysis centered primarily on comprehensive threaded discussion board data (more than 6,000 speech segments) for five graduate level courses, including both learner and instructor posts. Analysis revealed a substantive theory entitled Online GROUP Development that detailed five categorical stages - Greeting, Relating, Operating, Unifying, and Parting. The five stages outlined the *process* of how individuals, through their asynchronous threaded discussion board postings, evolved in their dialogue with one another to forge into an online learning community that evidenced increasing levels of cognitive, social, and affective involvement with one another across time. Four properties, labeled 4C Interaction, were identified and further differentiated each process stage. Additional analysis revealed a *structure* that promoted and nurtured conditions that fostered the development process. These conditions were labeled the Main Conditions Present and included three sets of variables that provided the foundation from which the evolution of Online GROUP Development occurred.

ACKNOWLEDGEMENTS

I wish to acknowledge the following individuals...

...To my advisor, Dr. Qetler Jensrud, who consistently encouraged a stronger product and who never gave up on me throughout this momentous undertaking. Your patience and commitment never led me astray. I always trusted your guidance.

...To my mentors, Dr. Denise Stuart and Dr. Evangeline Newton, for taking me under their wings and developing me into a researcher. I hope that I can enrich another person's life in a similar way that you have mine.

...To my committee members, Dr. John Savery and Dr. Sandra Coyner, for their commitment and demonstration of quality teaching.

...To my husband, Mark Moore, there are no words capable of expressing the gratitude that I have for your endurance in all of this. Your complete and unconditional support made this doctorate degree possible, especially this last leg of the marathon. I could not have done this without you!

...To my babes, Samantha and Matthew, who have patiently awaited their mother's completion of that "book" that has taken an eternity to write.

...To the numerous supporters including those who never stopped asking how the progress was coming – my parents, MaryRita, Uncle Tom, friends, and colleagues.

And to myself, HURRAY! It is now time to get a new hobby.

Progress...

...The determination to overcome anxiety, apprehension, and self-doubt in the midst of acting self-directedly toward the achievement of self-imposed goals.

Note to Self, August 4, 2004

Success...

... Having never stopped progressing!

Note to Self, July 28, 2007

TABLE OF CONTENTS

	Page
LIST OF TABLES	11
LIST OF FIGURES	14
CHAPTER	
I. THE PROBLEM	1
Introduction	1
Statement of the Problem	3
Background of Study	6
Research Questions	7
Significance of the Study	8
Definition of Terms	9
Assumptions	12
Summary	12
II. REVIEW OF THE LITERATURE	14
Introduction	14
The Evolution of Online Learning	16
The Art and Science of Teaching Online	18
The Development of an Electronic Pedagogy	18
Key Theories of Adult Learning	20
Behavioral Learning Theory	21

	Cognitive Learning Theory	21
	Humanistic Learning Theory	22
	Social Learning Theory	22
	Constructivist Learning Theory	23
	Contributions from Socioconstructivist Learning Theory	25
	The Development of Learning Communities Through Interaction	27
	Collaborative Discussion Promoted on Threaded Discussion Boards	34
	Instructors as Facilitators/Moderators of Online Learning	38
	Group Development Theory	43
	Traditional Group Development Theory	44
	Progressive Models	44
	Cyclical Models	47
	Nonsequential Models	50
	Group Development in the Online Realm	52
	Model Selection	61
	Summary	64
	Research Questions	66
III.	METHODOLOGY	68
	Restatement of the Problem	68
	Background of the Study	70
	Research Questions	72
	Procedures	72

Participants	75
Data Collection.....	80
Data Analysis: Grounded Theory Methodology	80
Open Coding	81
Axial Coding	82
Theoretical Sampling	83
Selective Coding	84
Memos and Diagrams	84
Validity and Reliability	85
Delimitations and Limitations.....	87
Summary	88
IV. PRESENTATION AND ANALYSIS OF DATA	90
Summary of Analysis Used.....	90
Research Questions	90
Descriptive Data.....	92
Data Sets.....	92
Participant Data.....	93
Introduction of Results.....	96
The Development of a Substantive Theory.....	96
Research Question 1 (RQ1)	96
The Emergence of a Substantive Theory and its Core Category: An Introduction	97
The Integration of Process and Structure	98
Five Major Online Group Development Stages.....	99

Major Categorical Descriptions	101
Stage I: Greeting	101
Stage II: Relating.....	105
Stage III: Operating.....	110
Stage IV: Unifying	117
Stage V: Parting	121
Properties and Subcategorical Descriptors of GROUP	133
Property 1: Course Content (CI)	134
Property 2: Cognitive Interaction (C2)	136
Property 3: Collegial Interaction (C3).....	137
Property 4: Course Platform (C4)	139
Research Question 2 (RQ2)	142
Conditional Context: The Integration of Process and Structure Further Refined.....	142
Computer Mediated Communication Input Variables (MCP1).....	143
Instructional Stance Input Variables (MCP2)	144
Participant Input Variables (MCP3).....	148
Research Question 3 (RQ3)	155
Interactive Patterns.....	155
Overall Summary of Results	163
V. SUMMARY, CONCLUSIONS, AND IMPLICATIONS	167
Introduction	167

Statement of the Problem	167
Statement of the Procedures	168
Research Questions	169
Major Findings	169
The Development of a Community of Learners.....	169
Online GROUP Development: An Exploration of Process ...	171
Online GROUP Development: An Exploration of Structure	173
Online GROUP Development: Comparison to Prior Work...	175
Implications for Practice	177
Pedagogical/Andragogical Implications Related to Online Learning	177
Implication #1: Effective Crouse Design May Impact Persistence of Students.....	178
Implication #2: Emphasis on Affective and Social Components of Written Discourse	180
Implication #3: The Promotion of Cognitive Complexity in the Group Environment.....	183
Implication #4: Instructors as Facilitators of Structure and Process.....	184
Implication #5: Quantity vs. Quality of Interaction	186
Implication #6: Instructional Methods Promote Modeling and the Social Construction of Knowledge	187
Implication #7: Online GROUP Development as a Hybrid Model	188
Limitations	190

Implications for Research	192
Summary	194
REFERENCES	196
APPENDICES	205
APPENDIX A. ESSENTIAL BENCHMARKS FOR INTERNET- BASED DISTANCE EDUCATION.....	206
APPENDIX B. IRB APPROVAL	208
APPENDIX C. LETTER TO INSTRUCTORS	209
APPENDIX D. IRB LETTER TO STUDENTS	211
APPENDIX E. SUMMARY OF RESEARCHER’S BACKGROUND .	213
APPENDIX F. SAMPLE OF CODES ASSIGNED TO CONCEPTS IN THE DATA.....	214
APPENDIX G. RECONSTRUCTION OF THE DATA: INTRODUCTION PROMPT.....	224
APPENDIX H. GREETING STAGE INDICATORS: STAGE I	236
APPENDIX I. DISCUSSION BOARD PROMPTS FOR GUIDED READING COURSES.....	241

LIST OF TABLES

Table	Page
1. Group Development: Progressive Models	45
2. Group Development: Life Cycle and Interactive Models	48
3. Group Development: Nonsequential Models	51
4. Synopsis of Discussion Board Prompts	77
5. Similarities and Differences of Participants in Guided Reading (GR) Courses	79
6. Grounded Theory: Major Analytical Process of Open Coding	81
7. Grounded Theory: Coding for the Paradigm Through the Axial Coding Process	83
8. Research Plan for Grounded Theory Proposal/Audit Trail	86
9. Threaded Discussion Board Text: Data Sets Represented Numerically ..	93
10. Participant Data Sets (Learners Only) from Five Course Sections	94
11. Description of the Acronym GROUP	100
12. GREETING Stage as Evidenced in Written Discourse Across Five Course Sections	102
13. Introduction Prompt: Frequency of Posts that Met Categorical Stage Description	105
14. RELATING Stage as Evidenced in Written Discourse Across Five Course Sections	106

15.	Module 1A: Frequency of Posts That Met the Overall Categorical Stage Description	108
16.	Module 1B: Frequency of Posts That Met the Overall Categorical Stage Description	109
17.	OPERATING Stage as Evidenced in Written Discourse Across Five Course Sections	111
18.	Module 2A: Frequency of Posts That Met the Overall Categorical Stage Description	114
19.	Module 2B: Frequency of Posts That Met the Overall Categorical Stage Description	115
20.	Module 3: Frequency of Posts That Met the Overall Categorical Stage Description	116
21.	UNIFYING Stage as Evidenced in Written Discourse Across Five Course Sections	118
22.	Module 4: Frequency of Posts That Met the Overall Categorical Stage Description	120
23.	PARTING Stage as Evidenced in Written Discourse Across Five Course Sections	122
24.	Module 5A/5B: Frequency of Posts That Met the Overall Categorical Stage Description	124
25.	Evidence of Progression Throughout Each Stage by Prompt: Course A.....	126
26.	Evidence of Progression Throughout Each Stage by Prompt: Course B.....	128
27.	Evidence of Progression Throughout Each Stage by Prompt: Course C.....	129
28.	Evidence of Progression Throughout Each Stage by Prompt: Course D.....	131
29.	Evidence of Progression Throughout Each Stage by Prompt: Course E	132

30.	Evolverment of Cognitive Interaction Over Time.....	137
31.	Summarization of Instructors' Online Talk Used to Facilitate Discussion in Asynchronous CMC	147
32.	Summarization of Instructors' Online Listening as Seen in Asynchronous CMC	148
33.	Group Development Stages – Major Comparisons Summarized	160
34.	Description of the Acronym GROUP	171

LIST OF FIGURES

Figure	Page
1. Emergent formation of categories (Waltonen-Moore et al., 2006)	74
2. Emergent integrating themes involving input of action & interaction as it yielded consequences	141
3. A substantive theory of online GROUP development: Process and structure	155

CHAPTER I

THE PROBLEM

Introduction

Distance education has brought forth a new venue for learners who desire an expansion of choices with regard to accessing education (Mehrotra, Hollister, & McGahey, 2001). Postsecondary institutions provide distance education opportunities as a way to attract learners and increase enrollments. Lim (2001) reported that adults constitute the largest group of individuals enrolled in distance learning. Mehrotra et al. suggest that the luxury of being able to work on educational and training pursuits at a time that is convenient to the learner, has perhaps increased its attractiveness among the adult learner population, especially for those learners who maintain a plethora of responsibilities outside of the educational context.

As a testimony to the popularity of education offered at a distance, the U.S. Department of Education's National Center for Education Statistics (NCES) (2004) reports that course enrollments nearly doubled from 1997-1998 (1.7 million) to 2000-2001 (3.1 million), with approximately half of these enrollments at 2-year public institutions. As further detailed by NCES (2000-2001), approximately 90% of those institutions who offered distance education courses during 2000-2001 utilized the

Internet, featuring asynchronous computer-based instruction as the primary medium of delivery.

With the growth of Internet-based coursework, important consideration must be given to the effective design of curriculum within this setting. Because instructors and learners in this learning venue may never meet in a traditional classroom, a challenge exists in that both parties must find new ways to successfully navigate and mediate the virtual classroom. In this sense, interaction between learners and instructors bears many implications for the online educational and training setting. The inability to overcome the potential isolation that can occur when learners are separated by space and time is particularly relevant (Bibeau, 2001). Harrington (as cited in Sweet, 1986) found that one of the largest reasons for dropout in distance education stemmed from the learner's perception of isolation. Similarly, in a study which examined what contributes to the retention of learners in web-based courses, Valasek (2001) found that those learners who participated actively in online class discussions were more likely to complete the course.

Additionally, the interaction of learners with one another is strongly advocated as a way to enhance learning, including the ability to think at higher cognitive levels which subsequently promotes durable knowledge construction (Knowlton, 2001). Instructional techniques such as discussion allow learning facilitators to tap into the potentially rich resources that each learner brings with him or her as they enter the virtual classroom environment. Creating a climate that is conducive to learning is strongly advocated for; thus, online pedagogy must consider how to embed adult learning principles into the effective course design and delivery of e-learning

environments (Jung, Choi, Lim, & Leem, 2002). As online instructors meld new roles into that of facilitators of learning, it becomes imperative to assist the online learner with the ability to feel comfortable in the virtual setting, as well as in the ability to collaborate with their colleagues in order to enhance learning outcomes.

Statement of the Problem

Web-based instruction continues to grow at rapid rates, perhaps mostly due to the demands of those learners who access it. Largely driven by the needs of the nontraditional adult learner who frequently works and has a multitude of other responsibilities, the freedom to choose distance education, and in particular, online education, provides access to post-secondary education and training that offers space and time independence (Palloff & Pratt, 2001). In this sense, learners are not bound to a traditional classroom or training setting that features instruction at a specific time and at a definitive location, but are instead given the autonomy to choose at what time and from what location they will access their online course. Although it has been cited that web-based training and instruction is growing at exponential rates in all areas of adult education, research on this topic is not growing at parallel rates (Williams, 2002).

As a newer medium for the delivery of courses, online instructors and course designers have been encouraged to rethink how they deliver courses through this medium (Bonk & Dennen, 2003; Johnson & Aragon, 2003; Naidu, 2003). As a result, the development of pedagogy specific to online learning is in its formative stages (Palloff & Pratt, 2001). With the delivery of online education, the art and science of teaching online is a phenomenon that has yet to be defined and shaped in this evolutionary learning venue.

One of the predominant learning theories that has helped delineate the design and delivery of online instruction is grounded in the principles of socioconstructivist learning theory (Porter, 2004). This engagement in active, learner-centered instruction is in direct opposition to those methods which are more teacher-centered and that focus on instructors professing their knowledge to passive recipients whose minds await knowledge (Knowlton, 2001). From the socioconstructivist theoretical lens, learning is mutually constructed through interactive learning communities, with instructors serving as “facilitators” of knowledge (Brookfield, 1986; Merriam & Caffarella, 1999). In this multifaceted role, instructors become collaborators in the construction of knowledge (Mezirow, 2000) and are encouraged to draw on the experience of the learners as a way to tap the potentially rich reservoir of resources that exist within them (Knowles, 1990).

Given the emphasis on the mutual construction of knowledge, fostering interaction through the development of online learning communities has been deemed a vital ingredient to the success of learners being able to achieve educational objectives (Liaw & Huang, 2000). Current emphasis is placed on online education to design courses that can motivate and engage learners toward the achievement of learning outcomes (Palooff & Pratt, 2001). Whereas the design of effective instruction is important in achieving these goals, more knowledge must be gained about the patterns and interactions of individuals involved in online settings so that educational objectives can be better designed and delivered in this electronic medium. To emphasize this point, White (2000) stated the following about online education:

Effective online instruction requires both content knowledge and interpersonal skills because the challenges of the online instructor are essentially about human interaction...It is structured around the dynamics of human communication...a human arena for the exchange of ideas...But most importantly, because of its special circumstances, it is even more challenging to work through the uncertainties and ambiguities of online communication. (p. 1)

Despite the research attention on interactive communication in the online educational setting, little is known about how instructors can best facilitate a group of potentially “virtual” strangers into an interactive, collaborative, and cohesive group. Bonk and Dennen (2003) speak to this challenge by noting a “pressing need” to investigate “how online communities are formed and sustained” (p. 345). Likewise, researchers have emphasized the critical need to examine the ways in which online educational communities form, develop, complete tasks, and evolve over time (Carabajal, LaPointe, & Gunawardena, 2003).

In a larger scope of defining the problem, Johnson, Suriya, Yoon, Berrett, and LaFleur (2002) advocated for the need to develop theory with regard to virtual learning groups acknowledging that “few research efforts have focused on the virtual learning team within the formal online education context...Thus further understanding of group formation and team dynamics in virtual environments is critical to the integration, creation, and support of online learning teams” (p. 382). Additionally, Carabajal et al. (2003) emphasize the importance of conducting research “on group development in order to construct a comprehensive conceptual framework that will guide practice in the design of effective online learning environments” (p. 218). These same researchers suggested the timeliness of inductive analysis that can yield models, laws, or theories of online group development, thus fully conceptualizing group process. Likewise,

Johnson et al. advocated for inductive theory development and specifically address issues related to how groups interact. Hence, there is a critical need to develop a substantive theory of online group development that can address vital issues in the formation and evolution of how learning groups evolve and work together.

Moreover, the instructor is integral to an investigation into the phenomena of online educational group formation and development. Williams (2002) observed the current paucity of research with regard to the role of the instructor in the successful facilitation of the online educational experience. Youngblood, Trede, and DiCorpo (2001) suggested that “more research is needed to see which facilitation strategies are most effective in a variety of learning contexts, and to understand better time and structural requirements for effective online groups” (p. 278). Similarly, Johnson et al. (2002) suggested that research is needed to better understand the specific role of the instructor as they seek to establish and support the learning team. Hence, not only it is important to examine the formation of how groups develop and evolve, but it is equally fitting to examine the role of the facilitator in developing and fostering this discourse, as it likely to play a pivotal role in elucidating an integrated conceptualization of group process.

Background of Study

A study conducted by Waltonen-Moore, Stuart, Newton, Oswald and Varonis (2006) analyzed how individuals “talk” with one another on online threaded discussion boards as evidenced among the participants in an online graduate level professional development course consisting of 18 learners. Analysis revealed that a group of “virtual” strangers evolved in their patterns of interactions with one another over time,

generating a cohesive and synergistic group of learners who evidenced high levels of critical thinking in their latter stages of development. A rudimentary model of online group development emerged and centered on five stages: introduction, identification, interaction, involvement, and inquiry. Although this study provided a framework that spoke to the *process* of how groups develop online, it did not analyze the *structure*, which would integrate contextual conditions that may have contributed to the process of online group development (Strauss & Corbin, 1998). Further analysis of additional data sets had the potential to more thoroughly identify, predict, and explain a phenomenon such as online group development, thus allowing for a more comprehensive understanding and theoretical explanatory framework to emerge (Strauss & Corbin, 1998). In order to address the issues of both the *process* and the *structure*, inquiry was guided by the following research questions:

Research Questions

1. Using grounded theory methodology, what structure promotes and what process describes the development of a community of learners as seen in asynchronous threaded discussion boards?
2. What influence might instructors' instructional stances have on the group dynamics during online discussions?
3. Do the interactive patterns of asynchronous threaded discussion boards as seen in five graduate level online professional development courses apply to the five-stage model of online group development proposed by Waltonen-Moore et al. (2006)?

Significance of the Study

This research has significance in that it has the potential to contribute a substantive theory of online group development, thus enabling practitioners and researchers to better understand how learners participate in asynchronous threaded discussion boards as evidenced in the online educational setting (Strauss & Corbin, 1998). Through the use of grounded theory methodology (Glaser & Strauss, 1967; Glaser, 1992; Strauss & Corbin, 1998), which will also include an analysis of how the Waltonen-Moore model of online group development applies to new data sets, a more inclusive understanding of online group development can evolve. This research is salient in that a greater understanding of the group dynamics and group process as seen in the evolution of learners in online educational settings has the potential to substantially impact the effective design and delivery of web-based instruction, with the ultimate goal of enhanced learning (Carabajal et al., 2003; McDonald & Gibson, 1998).

Of additional importance, this research would contribute to what is known about how online instructors might facilitate the structure of the threaded discussion board so as to enhance the community-building of their learners, thus impacting the learners' ability to achieve greater learning that is collective in nature (Palloff & Pratt, 2001; Porter, 2004). Hence, in online education where much of the work is collaborative in nature, "observation and knowledge of the dynamics of the group become more critical" (Palloff & Pratt, 2001, p. 125). McDonald and Gibson (1998) noted that if group learning is to be used effectively, "it is essential to understand group dynamics in computer conferencing and the way in which online groups work together

over time” (p. 9). Similarly, if the process of group development can be anticipated by instructors, they may be more equipped and inclined toward successful facilitation and management of group interactions, thus recognizing potential crisis points and capitalizing on potential anxiety to generate growth (McDonald, 1998).

Furthermore, this research sought to facilitate the pertinent connection in understanding the ways in which technology, learning theory, and instructional design interconnect in order to deliver web-based instruction that is motivating and rewarding to the learner, as well as educationally sound (Bonk & Cunningham, 1998; Johnson & Aragon, 2003). Perhaps the ultimate significance of this research is grounded in the following context by Bonk and Dennen (2003) who summarized the importance of research endeavors such as this by stating its impact in a holistic sense,

As higher education instruction is stretched into new electronic environments, e-learning frameworks will play a vital role in helping instructors, administrators, and policymakers reflect on their decisions concerning the theoretical perspectives, tools, activities, interaction patterns, roles, and instructional strategies pertinent to online learning. Frameworks can also lead to more focused research agendas, enhanced tool and courseware designs, prominent course and program comparison benchmarks, and better overall online teaching and learning environments. (p. 346)

Definition of Terms

The following definitions are used within this research:

Asynchronous. Online communication that does not occur instantaneously (in real time), as found in discussion board postings, guestbooks, listservs, newsgroups, or e-mail (Liaw & Huang, 2000; Williams et al., 2001). Individuals participate at a time and from a location that is convenient to them (Hara, Bonk, & Angeli, 2000).

Axial coding. In grounded theory methodology, “the process of relating categories to their subcategories, termed ‘axial’ because coding occurs around the axis of a category, linking categories at the level of properties and dimensions” (Strauss & Corbin, 1998, p. 123).

Computer Mediated Communication (CMC). A networked communication medium in which people “talk” in synchronous (real-time) or asynchronous (delayed-time) modes (Gunawardena et al., 2001).

Constant Comparative Method. In qualitative research, the continuous/constant process of comparing incoming data segments within and across categories (Gall, Borg, & Gall, 1996).

Dimensions. The location of a property on a continuum as defined through the methodology of grounded theory (Strauss & Corbin, 1998).

Distance education. An instructional medium in which the vast amount of instruction occurs while the instructor and learner are not in the physical presence of one another (Mehrotra et al., 2001).

e-Learning. “Educational processes that utilize information and communications technology to mediate asynchronous as well as synchronous learning and teaching activities” (Naidu, 2003, p. 351); terms such as online learning, virtual learning, distributed learning, networked learning, and web-based learning are frequently interchanged with the term e-learning (Naidu).

Grounded theory. In qualitative research, “the discovery of theory from data systematically obtained from social research” (Glaser & Strauss, 1967, p. 2).

Open coding. In qualitative research, the process of opening up the text and proceeding with the initial coding of data; data segments may be every word, sentences, paragraphs, or entire texts (Glaser, 1992; Strauss & Corbin, 1998).

Paradigm. An analytic tool specific to grounded theory methodology which helps integrate structure and process, thus allowing for the contextualization of a phenomenon; incorporates three components which include the conditions, actions/interactions, and respective consequences (Strauss & Corbin, 1998).

Properties. In qualitative research, the general or specific characteristics or attributes of a category as developed through the grounded theory methodology (Strauss & Corbin, 1998).

Selective coding. In qualitative research, a coding process specific to grounded theory methodology in which the data are reconstructed into an integrative theoretical framework with an overarching category that strings the concepts together. This process typically occurs after open and axial coding have commenced, but can occur simultaneously to these coding processes as well (Strauss & Corbin, 1998).

Subcategories. Utilized in grounded theory to specify a category further by answering when, where, why, and how a phenomenon is likely to occur; consists of properties and dimensions (Strauss & Corbin, 1998).

Synchronous communication. Online conversations which occur in real time (simultaneously) such as online conferences or chats, in which participants are present at the same time, although they may all be at different locations (Liaw & Huang, 2000).

Threaded discussion board. A tool within many web-based course management systems that allows for the asynchronous posting of messages; learners can read, post, or reply to a bulletin board of electronic messages (Bibeau, 2001).

Theory. In qualitative research, “a set of well-developed categories (e.g., themes, concepts) that are systematically interrelated through statements of relationship to form a theoretical framework” that can “explain who, what, when, where, why, how, and with what consequences an event occurs” (Strauss & Corbin, 1998, p. 22).

Web-Based Instruction (WBI). Instruction that uses the Internet as the primary medium for the delivery of all educational events (Porter, 2004).

Assumptions

The following assumptions exist with this study. First, with the exception of the four instructors who taught the courses under examination in this study, it is assumed that the majority of participants did not know each other before they started the course. Second, as all participants are professional educators, familiarity with the concept of traditional classroom learning communities may have impacted how they responded to one another in the quality and amount of interaction on the threaded discussion board. Third, the research assumed that all responses (as seen on threaded discussion boards, interviews, and summative evaluations) are truthful and are an accurate reflection of individuals’ feelings, thoughts, and opinions.

Summary

In summary, it has been noted that the area of online group development is a fertile field of research awaiting discovery (Carabajal et al., 2003). In fact, Carabajal et al. note “Fifteen years have passed since scholars noted the dearth of research on group

development in CMCs...a surprising gap in the literature still exists-leaving this area one of the largest challenges in the field of online education” (p. 231). Through grounded theory methodology, this research proposal sought to investigate how learners who are separated by space and time given the nature of their asynchronous online courses, participated through their written discussion board postings. The five-stage online group development model developed by Waltonen-Moore et al. (2006) was utilized as a way to establish whether this model accurately depicted the phenomenon when it is applied to the threaded discussion board transcripts of additional online courses. This study also focused on the instructional stance(s) of the instructors as they may have impacted the online group dynamics. Through inductive analysis, as is entailed in the grounded theory methodology described in more detail in Chapter III, a more complete conceptual depiction and explanation of online group development emerged. This research has the potential to make a significant contribution to the literature by adding an enhanced understanding of how groups of virtual strangers can come together and join forces to become a learning community that is capable of working interactively and collaboratively together, thus enhancing the learning outcomes of the participants in online education.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The field of distance education has seen significant shifts in the methods used to deliver instruction since its inception in the 1880's. Distance education, defined as that in which the majority of instruction occurs independent of the instructor and learner being in one another's physical presence (Mehrotra et al., 2001), has grown from methods consisting of text-based materials that were mailed to and from instructor to student, to the current realm of online education, featuring web-based curriculum that has the power to incorporate technology such as computer conferencing.

Through features such as computer conferencing, members of an online environment can access the course asynchronously (at separate times) or synchronously (simultaneously) and communicate with one another. The largely asynchronous delivery component of Internet-based education and training has challenged online course designers and educators/trainers to consider how it can be best utilized to achieve educational objectives on behalf of learners who may never meet one another in person (Porter, 2004; Williams, 2002).

Of particular importance in the online learning environment is the notion of interaction. Specifically, the instructional method known as discussion is widely touted in face-to-face adult learner classes because of its ability to allow learners to share their individual wealth of personal experiences (Brookfield, 1990). Similarly, the electronic discussion that can occur in the web-based environment through tools such as the asynchronous threaded discussion board is widely cited in the literature as a means to actively engage learners in the durable construction of knowledge (Bibeau, 2001; Knowlton, 2001; McDonald & Gibson, 1998; Palloff & Pratt, 2001; Porter, 2004). Ironically, despite the acknowledgement on the importance of interaction through discussion vehicles such as the threaded discussion board, little attention has been given to the process and structure that promotes group communication in this setting, especially in consideration of potential variables such as space and time independence (Carabajal et al., 2003; McDonald & Gibson, 1998). Specifically, research that analyzes group process through an examination of patterns of communication as seen in written discourse in the online learning environment has been documented as one of the largest challenges facing distant education researchers to date (Carabajal et al.).

This chapter reviews the salient literature as it pertains to tracing the history of distance education as impacted by technology from its inception to present day use in web-based instruction. Consideration is also given to the design of effective online learning environments. Most specifically, the contributions from the socioconstructivist learning theory (Vygotsky, 1978) are highlighted and include the importance of interaction and the development of learning communities, the

prominence of the threaded discussion board as an instructional tool, and the salient role that the instructor plays in the facilitation of the online educational experience. Pertinent to this discussion, a third foundational area examined the predominant group development theories, as explored in both the traditional setting and the online setting.

The Evolution of Online Learning

A historical analysis of the evolution of distance education categorizes it into three primary generations (Nipper, 1989). First generation distance learning was conceptualized through the instructional medium known as correspondence study, where, in the late 1880s, instructional materials were mailed to and from the instructor and learner (Mehrotra et al., 2001; Nipper). Although this method of instruction grew within the United States through recognized institutions such as the Chautauqua Correspondence College which offered correspondence diplomas and degrees in 1883 (Moore, 2003), it was largely viewed as substandard when compared to traditional, face-to-face instruction (Mehrotra et al.).

In the 1940s, second generation distance education integrated print material with multimedia technologies such as the radio and allowed instruction to be transmitted on airwaves (Mehrotra et al., 2001; Nipper, 1989). By the 1950s, commercialized broadcast television was utilized, with videotaped lectures popularized soon thereafter (Sumner, 2001). Whereas videotapes were mailed to learners similar to the tradition of correspondence study, it was satellite and microwave television, in combination with telephone links, that led to two-way interaction (Mehrotra et al.).

The third generation of distance learning began in the early 1990s, where technology was used to deliver interactive television from the instructor's site to the

learner's site, wherein both audio and video allowed for interactivity (Mehrotra et al., 2001; Nipper, 1989). By the mid-1990s, the digital revolution recognized the growth of personal computers, the Internet, the World Wide Web, and the CD-ROM, all of which allowed for instruction to be delivered to learners in the convenience of environments such as their homes or offices (Mehrotra et al.). This period also witnessed the profound impact of computer conferencing (Sumner, 2000).

Although the periods of distance education can be categorized according to the technological advancements within, there is another common theme which runs parallel to these innovations: the notion of interaction. In this sense, distance learning mediums that are one-way are viewed as ones which foster a more passive means for undertaking education, thus contributing to the distance education field being viewed as "second choice" and "somewhat suspect" (Mehrotra et al., 2001, p. 3). In contrast, the two-way technological capabilities that have helped shape and define current distance education trends, bear important relevance to the significant impact of social interaction. With regard to the second generation of distance learning, Sumner (2000) notes, "The opportunities for communicative action via two-way communication increased, but were often squandered by emphasising [SIC] the quantity of seamlessness of production over the quality of the learning experience, especially group interaction and social learning" (p. 276).

When examined in its most recent history, distance education has blossomed into an exciting and creative method for delivering interactive education, especially in consideration of the powerful potential made available through web-based instruction in which interaction can occur both synchronously (simultaneously) and

asynchronously (at different times). Terms such as online education, e-learning, web-based instruction, and distributed education, although not precisely synonymous, are generally used interchangeably when referencing this type of learning (Naidu, 2003).

Harasim (2000) differentiated online education according to five attributes which specifically pertain to communication in this setting: “many-to-many (group communication), any place (place-independence), any time (asynchronicity, time-independence), text-based (enhanced by multiple media), and computer-mediated messaging” (p. 49). Of particular importance was Harasim’s distinction of online education from distance education to which she adds, “Both are any place, any time, and largely text-based. However, the critical differentiating factor is that online education is fundamentally a group communication phenomenon” (p. 49). This group communication phenomenon places emphasis on interactive learning which includes the capability of learners to interact with both their instructor and with one another through instructional tools made available within many web-based course management platforms.

The Art and Science of Teaching Online

The Development of an Electronic Pedagogy

The Institute for Higher Education Policy (2000) reported that web-based instruction is quickly becoming “the predominant technology in distance education...given the accelerating power of personal computers, increasing telecommunications bandwidth capabilities, and the state-of-the-art software development and delivery” (p. 6). In light of this expansion, recent literature in the field of online education has subsequently referenced a need to consider the

simultaneous development and incorporation of an online pedagogy into the e-learning environment (Bonk & Dennen, 2003; Palloff & Pratt, 2001; Williams, 2002).

While former types of distance learning (e.g., instructional radio and television) had some impact on the design of educational practices, the third generation of distance learning, as seen through the technological advances of the Internet, may significantly alter how education is designed and delivered (Johnson & Aragon, 2003). They further noted that whereas incorporation of technology into instructional delivery mediums has been shown to have no significant difference in a learner's ability to obtain educational objectives (when compared to that of their face-to-face counterparts), important emphasis is placed on the fact that quality curriculum ultimately coexists with quality design and implementation, rather than with the technology used to deliver the curriculum. Naidu (2003) emphasized, "To make the most of the opportunities that these technologies offer, careful attention needs to be paid foremost to the *pedagogy* of the learning and teaching transaction" which "refers to the 'design and architecture' of the learning and teaching environment" (p. 355).

Bonk and Dennen (2003) noted the dearth of available research and knowledge with regard to appropriate and effective teaching and learning on the Internet and acknowledge that there is a definitive need to understand how the tools within course management systems, learning theories, and teaching techniques interconnect in a web-based learning environment. Similarly, Bonk, Wisher, and Lee (2004) noted that teaching on the Internet is complex and suggest that many instructors are not adept in understanding the technology and how to best use it to motivate and engage students.

Palloff and Pratt (2001), suggested that the art and science of teaching online be titled electronic pedagogy or “e-Pedagogy.” In this regard, Johnson and Aragon (2003) noted, “The challenge for instructional designers is to devise ways to incorporate the most effective and innovative instructional strategies in courses delivered over the Internet” (p. 33). Naidu (2003) noted the important role of instructional design in refocusing our attention on the teaching and learning process where various forms of distance learning are utilized.

In summary, the advent of asynchronous e-learning has given cause to instructors and course designers to rethink the way that courses are delivered in order to overcome any virtual barriers that may be generated by the temporal and geographic separation of learners and their respective instructors. Important to a discussion on the need to “rethink” pedagogical decisions, is a review of some of the more predominant learning theories that exist to guide the instructional design process.

Key Theories of Adult Learning

Although the development of an electronic pedagogy is still in its formative stages, a variety of learning theories exist (as developed from research in the traditional, face-to-face setting) to guide the designer with instructional choices (Bonk & Cunningham, 1998; Ertmer & Newby, 1993; Johnson & Aragon, 2003; Knowles, 1990; Morrison, Ross, & Kemp, 2001, 2004). Specifically, Merriam and Caffarella (1999) described several key theories of learning that are relevant to adults: behavioral, cognitive, humanist, social learning, and constructivism. A brief description of these theories follows.

Behavioral Learning Theory

Behavioral learning theory acknowledges the salient role that the environment has in eliciting desired behaviors, with successful outcomes considered to be those learners who can successfully demonstrate a desired behavior (Merriam & Caffarella, 1999). Fundamental to this perspective are the elements of stimulus and response and the manipulation of the environment to achieve measurable outcomes (Knowles, 1990). In this sense a stimulus is used to elicit the appropriate behavior (response) with careful attention paid on how to strengthen and maintain the desired response (Ertmer & Newby, 1993). The notions of positive reinforcement and repetition are widely associated with this method (Johnson & Aragon, 2003). Although some features of this perspective are in opposition to beliefs held by adult learning theorists, Ertmer and Newby illustrate those tenets that have merit in an adult education setting: (a) the use of objectives, task analysis and competency-based assessment as ways to produce observable, measurable outcomes; (b) the use of pre-assessment to determine where instruction should begin; (c) sequential delivery of instruction; (d) rewards and informative feedback; and (e) the utilization of practice and application to enhance the ability to perform the desired outcome.

Cognitive Learning Theory

As a reaction to the behaviorist perspective and its attention on observable behavior, cognitivism focuses on the internal processes that enable learning to occur (Knowles, 1990; Merriam & Caffarella, 1999). In this sense, psychologists and educators de-emphasize the overt behavior and focus more on internal cognitive procedures such as that associated with memory and language development (Ertmer &

Newby, 1993). Cognitivists view learning as the ability of an individual to learn concepts and skills through independent engagement, free of context and interaction (Alfred, 2002).

Humanistic Learning Theory

From the humanistic perspective, learning theory emphasizes the role of human needs as the means to which individuals can achieve growth and development (Knowles, 1990). Merriam and Caffarella (1999) stated, “Humanism emphasizes that perceptions are centered in experience, as well as the freedom and responsibility to become what one is capable of becoming” (p. 256). It is important to note that much of adult learning theory, especially that purported by Knowles’ andragogical assumptions (described in more detail later), is considered grounded in the humanistic perspective (Knowles, 1990; Knowles, Holton, & Swanson, 1998). As such, emphasis is said to be learner-centered, including ways with which a learning facilitator can establish safe and effective learning climates that promote the self-actualization of the learners (Knowles, 1990; Knowles, 1995; Merriam & Caffarella).

Social Learning Theory

The social learning orientation, which melds principles from both the behavioral and cognitivist perspectives, suggests that learning is obtained through observation (Merriam & Caffarella, 1999). In this respect, Tu (2000) emphasized that “Interaction is viewed as a process of reciprocal determinism; behaviour [SIC], other personal factors, and environmental factors all operate as interlocking determinants of each other” (p. 30), thus requiring interaction between the learner and role model as a necessary prerequisite to learning.

Constructivist Learning Theory

Constructivist learning theory is based in cognitive psychology (Williams, 2002) and gives emphasis to how individuals engage in the construction of knowledge or meaning making (Merriam & Caffarella, 1999). From this perspective, individuals play a crucial role in how they interpret and make sense of their world. Constructivism can largely be viewed on a continuum, with cognitive constructivism on one end in which knowledge is seen as internally constructed, to social constructivism (or socioconstructivism) on the opposite end, in which knowledge is socially mediated (Merriam & Caffarella). As such, constructivist teaching methods are seen as twofold in that they (a) provide the learner with the opportunity to actively construct new knowledge which is then added to their reservoir of established knowledge and (b) they foster the interaction of participants with one another to assist in the new knowledge construction (Huang, 2002; Williams). It is important to note that the socioconstructivist perspective is aligned with many of the adult learning principles promoted throughout the literature (Brookfield, 2003; Mezirow, 2000). For example, Merriam and Caffarella (1999) included it as one of the primary contemporary adult learning theories because it is inclusive of so many fundamental beliefs about how adults learn, especially in relation to its emphasis on the role of life experience. Likewise, Williams suggested that constructivism is synonymous with “active learning, adult learning, and self directed learning” (p. 135).

Diverse learning theories such as these provide instructional designers and instructors with options in choosing which theory would best fit the desired learning objectives (Ertmer & Newby, 1993). This choice, referred to by Ertmer and Newby as

“systematic eclecticism,” specifically references the wide range of choices that exist to guide pedagogical decisions.

With regard to web-based course design, systematic eclecticism is illustrated throughout several examples in the current literature. Johnson and Aragon (2003) distilled a literature review of web-based pedagogical perspectives to include instructional methods derived from behavioral, cognitive, and social learning theories, with underpinnings from the andragogical perspective. Williams (2002) conducted research which investigated the effective design of Web-based training and instruction and concluded with a list of thirty-six critical design principles in which constructivism, adult learning principles, and behaviorism were interwoven. Bonk and Cunningham (1998) suggested a framework that pulls from a learner-centered, as well as a socioconstructivist and sociocultural background (and, in fact, use these latter two terms interchangeably).

As noted, a variety of learning theories exist which instructional designers and instructors can use to guide instructional decision making, including curriculum designed for web-based learning. Whereas there is freedom to choose among many, it is the socioconstructivist perspective that largely dominated the review of literature as it pertained to the effective design of online instruction (Bonk & Cunningham, 1998; Im & Lee, 2003-2004; Liaw & Huang, 2000; Lock, 2002; McDonald & Gibson, 1998; Williams, 2002). Palloff and Pratt (1999) encouraged the active learning that is central to socioconstructivist learning theory as the “new paradigm of education” which “is directly transferable to the online environment” (p. 16). Due to its pre-eminence in the

literature that is specific to web-based pedagogy, this learning theory is reviewed in more detail in the next section.

Contributions from Socioconstructivist Learning Theory

Numerous online course designers and instructors have turned toward the socioconstructivist learning theory to guide their decision-making process (Bonk & Cunningham, 1998; Liaw & Huang, 2000; Lock, 2002; McDonald and Gibson, 1998; Savery, 1998; Williams, 2002). Socioconstructivist learning theory is grounded in the assumption that knowledge is socially constructed (Vygotsky, 1978). Within this perspective, Merriam and Caffarella (1999) elaborated that the ability for individuals to make sense of their world, that is, to engage in the cognitive process of meaning making, is accrued both individually through one's intellect, as well as through interactive social exchange. In this sense, knowledge transcends beyond one's cognitive functioning and becomes collective in nature (Brookfield, 2003).

Constructivist researchers advocate that instruction (a) engage learners in tasks that are authentic, (b) provide learners with collaborative opportunities from multiple perspectives, (c) assist learners with self-formation and self-regulation of goal development and obtainment, and (d) encourage learners to self-reflect on how and what is being learned (Driscoll, 2002).

Similarly, Savery and Duffy (1995) suggested eight instructional principles from which to design constructivist learning environments: (a) design learning activities that are anchored to a larger task or problem, (b) align learner goals with instructional goals, (c) design tasks that are authentic, (d) design learning tasks that match the environment in which the skill will be performed at the conclusion of

learning, (e) enable student ownership of the learning problem and the process to solve the problem, (f) design learning environments that support and challenge, (g) encourage testing of ideas and alternative views through the use of learning communities, and (h) provide learners with opportunity for reflection of content learned and on their individual learning processes.

As illustrated, a primary tenet of the socioconstructivist perspective is the importance in actively engaging learners in meaningful and contextually relevant learning in which the opportunity to collaboratively engage with fellow peers is plentiful. By working in conjunction with knowledgeable peers, which includes both learners and instructor, an individual can be mentored to knowledge levels beyond what Vygotsky (1978) identified as their zone of proximal development. Vygotsky defined the zone of proximal development (ZPD) as relating to “those functions that have not yet been matured but are in the process of maturation, functions that will mature tomorrow but are currently in an embryonic state” (p. 86). He further described the ZPD as the “distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (Vygotsky, p. 86).

In this regard, several fundamental principles serve as strongholds that unite socioconstructivist learning theory with the literature on web-based learning: (a) the development of learning communities through the promotion of interaction, (b) collaborative discussion as promoted on asynchronous threaded discussion board, and (c) the critical role of the online instructor in the facilitation and management of the

discussion. These tenets are described in detail in the following section of this literature review.

The Development of Learning Communities Through Interaction

Amid the advocacy for the mutual construction of knowledge through interaction as outlined from the premise of a socioconstructivist perspective, an emphasis on the development of learning communities becomes one of the most recognizable instructional goals as it assists learners in enhancing meaning and with the assimilation of new information with previously learned material (Bibeau, 2001; Bonk & Cunningham, 1998; McDonald & Gibson, 1998; Merriam & Caffarella, 1999). From this perspective, knowledge is constructed through the potential for social interaction and collaboration within a community of knowledgeable peers. Mezirow (2000) emphasized this interdependence of individuals within a social context in the following statement:

Human beings are essentially relational. Our identity is formed in webs of affiliation within a shared life world. Human reality is intersubjective; our life histories and language are bound up with those of others. It is within the context of these relationships, governed by existing and changing cultural paradigms, that we become the persons we are. (p. 27).

Although not written to directly reference learning on the World Wide Web, the “webs of affiliation” reference takes on greater meaning when considering the context of interactive learning in the online educational setting. A community of knowledgeable peers is often referred to as a learning community and is used to reference a group of individuals linked through curricular organizational realms (e.g., those that link cohorts of students through two or more classes) and those that prescribe to foster and enhance the social relationships among learners in order to generate

learning (Kling & Courtright, 2002). Within the context of this literature review and proposal, learning community specifically references the latter and is described in the following section.

In an electronic learning landscape, learning community is defined as “a group of people who communicate with each other across the Internet (or sometimes intranet) to share information, learn more about a topic, or work on a project of mutual interest” (Porter, 2004, p. 193). Bonk et al. (2004) addressed the formation of a learning community as one of the most challenging dilemmas facing the online instructor and note the salient role that interaction plays in its achievement. Similarly, Lock (2002) added that a community involves “communication, relationships, activities, identities, memberships, and a shared history” (p. 396). She further suggested that four cornerstones serve as a foundation in a learning community framework: communication, collaboration, interaction, and participation.

Im and Lee (2003-2004) argued that students must be active participants in their learning experiences and further suggest that learners communicating with one another, whether synchronously or asynchronously in web-based instruction, served as the major tool in the development of a learning community. Similarly, Nicholson and Bond (2003) suggested that computer mediated communication (CMC) has the power to “create a sense of community among colleagues in cyberspace where, as the community evolves and matures, participants grow closer to each other, developing a strong sense of camaraderie (p. 262). In fact, Porter (2004) suggested that online teaching tools are otherwise powerless if they are not used in the intentional building of

a learning community, as it is through this process that learners are enabled to feel as if they are part of a viable classroom experience.

Moreover, Palloff and Pratt (2001) emphasized that online education must pay specific attention to the development of community as it serves as a prerequisite to learning. These same authors suggested that the attention being paid to learning communities in the online environment is not overrated, but is a valuable way to empower learners to become self-directed as they seek to enhance their learning.

Learning communities are purported to produce learner outcomes that result in higher levels of conceptual knowledge (Liaw & Huang, 2000). It is through the collaborative nature of a learning community where “deeper levels of knowledge” are promoted (Palloff & Pratt, 2001, p. 32). These deeper levels of knowledge are said to reflect knowledge that is both durable (Knowlton, 2001) and reflective of critical thinking (Bloom, Engelhart, Furst, Hill, and Krathwohl, 1956). Hence, there is an abundance of research that advocates for the development of the online learning community as a pertinent ingredient to incorporate in the design of web-based instruction, especially given its asynchronous nature (Carabajal et al., 2003; Im & Lee, 2003-2004; Jung et al., 2002; McDonald & Gibson, 1998; Porter, 2004).

As noted, socioconstructivist learning theory advocates for the communal building of knowledge (Liaw & Huang, 2000; Porter, 2004). Therefore, if knowledge is socially constructed and mediated, online pedagogy has an inherent responsibility to examine the nature of interaction (Anderson, 2003). Specifically, it must intentionally seek ways to bring learners together in a manner that is interactive and collaborative, and that pulls from the collective experience that each learner brings with them

(Brookfield, 2003). Huang (2002) added that “online educators need to find ways to promote collaborative learning through reflection and social negotiation” (p. 33).

Given the predominantly asynchronous nature of online learning environments, it becomes imperative to consider the incorporation of interaction into the design and delivery of online learning environments (Palloff & Pratt, 2001). Interaction through an online medium can be cultivated through means that are either synchronous (occurring in real time) or asynchronous, (occurring at different times), with the latter option providing more flexibility for the learners who seek this route to educational and training initiatives (Mehrotra et al., 2001). Interaction in a distance learning setting offers technology that can “extend the reach of voice and visual contact, overcome limits of time and geography, and reach audiences not otherwise served...it also shapes and mediates the nature of interaction that occurs in distance learning instruction” (Hassenplug & Harnish, 1998, p. 604).

The important nature of interaction is highlighted in one of the most comprehensive benchmarking studies available to date. The Institute for Higher Education Policy (IHEP), in its 2000 report entitled *Quality-on-the-Line: Benchmarks for Success in Internet-Based Distance Education*, identified 24 benchmarks that are considered essential in assuring excellence in the delivery of online courses, regardless of whether the course is delivered within a higher education context (Appendix A). Within this report, seven major categories of benchmarks were identified and include the following headings: Institutional Support, Course Development, Teaching/Learning, Course Structure, Student Support, Faculty Support, and Evaluation and Assessment. Within the Teaching/Learning category, one benchmark

specifically references the significant nature of interaction, “Student interaction with faculty and other students is an essential characteristic and is facilitated through a variety of ways” (IHEP, p. 2). It therefore becomes vital that adequate attention be dedicated to facilitating a variety of ways for instructors to foster interaction, whether it is through direct communication with learners, or through the intentional design of group learning activities that foster an interactive and collaborative learning environment.

In a similar vein, the IHEP benchmarks speak directly to the nature of interaction which Anderson (2003) referenced as (a) student-teacher and (b) student-student. To this, Anderson added four additional types of interaction: (c) student-content (interaction within the distance education context that includes texts, electronic resources, and faculty-created study guides); (d) teacher-content (interaction of teachers with the production of content or learning objects); (e) teacher-teacher (the networking and collaboration of teachers with one another to guide and share in their pedagogical experiences as seen in a learning community); and (f) content-content (intelligent agents or programs that are programmed to assist with the retrieval and updating of information, the operation of other programs, decision making, and that monitor resources on other networks). Anderson emphasized that there is a need to find the right mixture of interaction between these six types in order to enhance learning:

Our responsibility as professional distance educators remains—to insure that the modes of interaction that we practice and prescribe maximize the attainment of all legitimate educational objectives and support and increase motivation for deep and meaningful learning. (p. 141)

In support of this notion, Jung et al. (2002) examined three types of interaction on learning achievement, satisfaction, and participation in web-based instruction. Distilled from the literature, these three types of interaction consisted of (a) content-centered academic interaction as seen between learners and their instructor or between learners and the resources provided online, (b) collaborative interaction between and among learners, and (c) social interaction between learners and their instructor. Participants included 124 undergraduate students from three courses, with each participant assigned to one of three different interaction groups (academic interaction, collaborative interaction, or social interaction), which also served as the independent variables. Dependent variables consisted of learning achievement, satisfaction, and participation. One-way analysis of variance (ANOVA) yielded results in which no significant difference was found between satisfaction level with web-based instruction (WBI) and satisfaction with perceived learning outcomes. However, post-hoc Scheffé analysis, which was also used to determine significant group differences, indicated that learners' satisfaction with the WBI was related more to interaction with other participants than it was to the instructor. Further analysis found significant differences in learning achievement, with the social interaction group resulting in higher learning achievement as compared to the academic interaction group. Jung et al. (2002) concluded, "Even for adult learners, social interaction with instructors and collaborative interaction with peers are important to enhance their learning and increase their participation in online discussions" (p. 160). Implications provide support for the notion that interaction of any type is an instructional strategy that must be strategically planned for in the online educational setting.

Tu and McIssaac (2002) examined students' perception of social presence, or the feeling of community in an online setting, using 51 students enrolled in a graduate-level course. Exploratory factor analysis conducted on a CMC Questionnaire yielded five dominant factors: social context, online communication, interactivity, system privacy, and feelings of privacy. The participants' perception of social presence on CMC was found to be high ($M = 3.32$, $SD = .39$), as was privacy ($M = 3.08$, $SD = .52$). Qualitative data collection, including casual conversation, interviews, direct observation, and document analysis of all messages, revealed additional dimensions that contributed to social presence. Social context dimension factors included "familiarity with recipients, informal relationships, better trust relationships, personally informative relationships, positive psychological attitude toward to [SIC] technology, and more private locations" (p. 140). Online communication dimension factors included conversation that is stimulating, expressive, used to communicate feelings, provides meaningful interactions, and is easily understood by its users. Interactivity dimension factors included timely responses, stylistic communication (e.g., is attentive, relaxed, open, animated), casual conversation, appropriate message length, attends to task types, and group size. Social presence is a critical element in the enhancement of online social interaction and, thus, Tu and McIssaac (2002) redefined social presence as "the degree of feeling, perception, and reaction to another intellectual entity in the CMC environment" (p. 146) as represented by three dimensions: social context, online communication, and interactivity.

Collaborative Discussion Promoted on Threaded Discussion Boards

As early as 1926, the instructional method known as discussion was advocated as a primary way to engage adults in learning (Lindeman, 1926). Brookfield (1990) exclaimed the instructional strategy of discussion as one that is exalted because of its ability to include the participation of all members, yielding an environment in which learners and teachers are equalized for the expertise that they each contribute. Discussion purports to have both cognitive and affective benefits in the promotion of problem-solving, the exploration of concepts introduced through other teachings, and in the encouragement of desirable attitudes (Brookfield, 1986).

The facilitation of this collective interaction and collaboration amongst online learners is something that can be accomplished through online discussion forums. As a result, a variety of group learning techniques, such as discussion, have become prominent instructional methods as online instructors seek to build a networked community of learners (Carabajal et al., 2003; Knowlton, 2001). A discussion forum can provide relevant learning activities that engage learners in authentic tasks that are contextually situated, thus fostering the mutual construction of knowledge that can help learners progress through their zone of proximal development (Bonk & Cunningham, 1998; Savery, 1998; Vygotsky, 1978).

Threaded discussion boards, also known as discussion forums, offer a unique way for learners and instructors to communicate in a web-based instructional environment. This electronic “bulletin board” allows messages to be posted, read, and replied to in an asynchronous fashion (Liaw & Huang, 2000; Youngblood et al., 2001). Thus, learners and instructors can continue to access the online course at times that are

convenient to them, yet never miss any pertinent discussion as all messages are saved and archived for later retrieval.

There are a variety of software systems designed to manage the web-based instructional environment. Three examples of web-based course management systems include ANGEL, Web Course Tools (WebCT), and Blackboard (EduTools, n.d.). All of these systems feature a discussion forum as described above and some offer more enhanced forums than their counterparts. For example, small groups can be developed to work on collaborative group projects and can be assigned their own private discussion board. Through systems such as ANGEL, discussion boards can extend beyond the immediate group of learners to include other courses, departments, or institutions, thus further expanding the ability to collectively construct knowledge.

One of the hallmarks of asynchronous discussion is the ability for learners to have time to reflect on the conversation (Palloff & Pratt, 2001). In this regard, discussion boards can be utilized as a forum to encourage higher levels of critical thinking as learners engage in discursive conversations that evidence higher levels of thinking, such as modeled in Bloom's Cognitive Taxonomy (Aviles, 1999; Bloom et al., 1956; Knowlton, 2001). Within this taxonomy, a hierarchy of cognitive complexity begins at the knowledge level and becomes increasingly more complex as it advances to levels of comprehension, analysis, synthesis, application, and evaluation.

Palloff and Pratt (2001) noted that online learners are expected to generate knowledge using critical thinking, analytic, and research skills in order to construct knowledge and meaning that makes sense to the individual learner. Similarly, in their review of literature on ways to enhance interaction in web-based instruction, Liaw and

Huang (2000) encouraged activities such as “engaging and reflecting, annotating, questioning, answering, pacing, elaborating, discussing, problem-solving, linking, constructing, analyzing, evaluating, and synthesizing” (p. 43). Higher levels of critical thinking offer a generative approach to making knowledge construction more durable and permanent (Knowlton, 2001; Knowlton, Knowlton, & Davis, 2000; Morrisson, Ross, & Kemp, 2001, 2004).

Research conducted on threaded discussion boards illustrated its potential to support the cognitive realm. Hara et al. (2000) utilized both quantitative and qualitative methods to analyze the content of 20 participants’ online discussion in a graduate level psychology course. This particular course discussion utilized the starter-wrapper technique in which one student started the discussion and another summarized it. Among the results, the researchers found, “It appears that by structuring electronic learning activity, students will have more time to reflect on course content and make in-depth cognitive and social contributions to a college class than would be possible in a traditional classroom setting” (p. 140). As such, analysis revealed a learner-centered environment with postings that reflected higher order cognitive thinking skills, as well as metacognitive strategies.

Likewise, a case study that utilized the constant comparison method of analysis to examine the nature of discussion as seen on threaded discussion boards, found that 18 graduate-level professional development students in education evidenced increasing levels of cognitive complexity as they progressed through stages of group development (Waltonen-Moore et al., 2006). As seen in later stages of their group development, specifically, the fourth and final stages entitled involvement and inquiry,

critical thinking was evidenced as participants sought the direct application and evaluation of the course objectives into their professional practice.

In order to facilitate higher levels of thinking, researchers advise that careful attention must be given to meticulously planning the use of the threaded discussion board prompts into the instructional design process (Knowlton et al., 2000; Porter, 2004). Within the design phase, Knowlton (2001) offered advice to practitioners for making online discussion more educationally durable. In this sense, he suggested the design of several types of questions: (a) domains of thinking questions which “require students to analyze, synthesize, and evaluate the types of problem solving approaches and knowledge construction mechanisms inherent to a given field” (p. 5); (b) case analysis questions which assist learners with the application of theories and concepts that are based on authentic situations; and (c) introspective questions which encourage learners to reflect on their own learning process. Other researchers advocated the additional use of a pilot discussion board in which the designed prompts or questions are tested with other learners (Williams et al., 2001).

In addition to a conversation on electronic pedagogy which has considered the contributions of the socioconstructivist position, the development of learning communities through interaction, and the utilization of the threaded discussion board, attention must also be dedicated to the role of the instructor in this unique and multifaceted learning environment. The geographical and temporal separation of the medium, coupled with a plethora of other issues which add complexity to the situation (e.g., technology efficiency of the learner or the time zone differentiation between respective learners), contribute to a unique scenario with which an online instructor

must demonstrate multifaceted skills in order to help a group of virtual strangers evolve into an interactive learning community that is capable of achieving educational outcomes such as critical thinking.

Instructors as Facilitators/Moderators of Online Learning

Web-based instruction has demanded that instructors reconsider the way that they teach (Palloff & Pratt, 2001; Porter, 2004). A re-examination of roles is included in the conversion of the traditional course into quality curriculum for the Internet (Johnson & Aragon, 2003). In this sense, literature strongly espoused that online instructors view themselves as facilitators or moderators of learning (Berge & Muilenberg, 2000; Bonk, 2003; Bonk et al., 2004; Knowlton, 2001; Knowlton et al., 2000; Liaw & Huang, 2001; Palloff & Pratt, 2001; Porter, 2004; Williams et al., 2001; Youngblood et al., 2001).

Williams et al. (2001) further described the multifaceted nature of the online instructor as one that has the potential at any given time to include functions such as serving as “lecturer, tutor, moderator, mediator, mentor, assistant, provocateur, observer, or participant” (p. 155). As facilitators of learning, instructors assume a role in which the lines of instructor and student are blurred (Brookfield, 2003), with more effective instructors participating as more of a peer or co-learner (Bonk, 2003). Likewise, Mezirow (2000) acknowledged that the adult educator role presumes a transference of authority from educator to learner, with the successful educator becoming more of a collaborative learner. In this position, facilitators take responsibility for guiding, mentoring, and providing support and structure as they work to establish a safe environment in which learners are comfortable working with one

another (Bibeau, 2001; Porter, 2004). Similarly, Biswelo (2001) added that an important goal within any adult learning setting is the establishment of an atmosphere of trust where learners “feel both safe and challenged at the same time, with learners encouraged to become active participants in the teaching/learning process, with some degree of mutual involvement in the determination of instructional objectives (p. 53).

Knowles’ andragogical model, which provides a framework for the art of teaching adults, is premised on facilitators who respect and cultivate several assumptions about learners within the education and training experience (Knowles, 1990, 1995; Knowles et al., 1998). The first assumption centers on adult learners as self-directed individuals, and in essence, asks that they be treated as the independent and mature learners that they are. Second, the experience that a learner brings to an educational setting is seen as a hallmark of andragogy and speaks to the unique contributions of each learner and to the necessity in tapping this resource to foster future learning. Third, adults have a readiness to learn if they believe it will help them solve real-life problems. Fourth, in large part, adults are motivated intrinsically to pursue education and training (Knowles, 1990, 1995; Knowles et al., 1998; Long, 1990). Fifth, adults bring an orientation to learning with them that is life centered (task-centered or problem-centered); hence, instruction that provides practical real-life “solutions” is revered by the adult learner. A final assumption includes the notion that adults operate on a need-to-know basis and appreciate knowing why something is important to learn (Knowles, 1990, 1995; Knowles et al., 1998).

Within the online educational setting, the facilitator takes on a heightened sense of appreciation for facilitating relationships and interaction that is respectful of these

andragogical assumptions. In this regard, White (2000) emphasizes that online instructors “must develop the understanding that meaning is created in the interaction among people - not in the words alone - and that online communication...includes all the human qualities of attitudes, feelings, and emotions” (p. 2). In this role, online instructors are responsible for helping learners develop the cohesiveness necessary to promote interaction and collaboration among the learners (Bibeau, 2001). Moreover, Bonk et al. (2004) note the important ability for online instructors to understand how to facilitate or moderate the creation of situations that allow for the mutual construction and sharing of knowledge, as well as for the exchange of feedback that is genuine and prompt.

Youngblood et al. (2001), in their research on the facilitation of online learning, utilized 15 Masters of Public Health online courses in England conducted in 1999 and 2000. Participants included a possible 262 students, from which 89 students returned a survey (response rate of 34%) and from whom, 12 semi-structured telephone interviews were conducted. Semi-structured interviews occurred with six of the instructors. Results yielded a framework to assist the online instructor with the structuring of tasks and responsibilities and include: (a) setting the scene (e.g., defining expectations, grading policies, welcome messages); (b) monitoring participation (e.g., keeping discussion on task, contacting students offline, and summary techniques); (c) facilitating critical thinking (e.g., use stimulating questions, move discussion forward, stimulate reflection of posted comments); and (d) promoting collaboration (e.g., post comments that build on others’ and small-group work).

Knowlton (2001) offered guidelines for the effective facilitation of online discussions. In the Traditional Model, the instructor provides a theoretical rationale for discussion, establishes a sense of community, serves as a role model, and uses techniques such as paraphrasing, synthesization, and Socratic questioning. The Discussant Model affords learners with the opportunity to share responsibility in the discussion by utilizing various roles such as leader and contributor. Similarly, in the Self-Analysis Model, learners respond to discussion prompts, offer replies, summarize the discussion, and self-analyze their contributions. Knowlton also emphasized a need for online discussions to be evaluated and suggests self-evaluation and peer evaluation as two means for engaging learners in this process.

Williams et al. (2001) conducted action research on the facilitation of cross-cultural discussion groups with five adult education graduate instructors from the United States, England, and Australia, and five additional “stakeholders” that provided mentoring to the instructors. Using the constant comparative method, analysis revealed seven primary challenges and suggested ways to overcome each: (a) use framing, asking questions, and reframing of information to ensure correct interpretation of messages; (b) employ online group participation through a variety of means including individual e-mail; (c) use process checks and learning checks to overcome the absence of face-to-face meetings; (d) utilize introductions and icebreakers, as well as allow learners to serve as facilitators in order to foster group dynamics; (e) clarify expectations of learners at the beginning of the course; (f) clarify expectations of respective facilitators through regular contact and the use of pilot discussions; and (g)

combat facilitator anxiety through the employment of above strategies and through the provision of an international technical infrastructure.

There is general consensus with researchers who suggest that the role of online facilitator/moderator is imperative to the success of a course (Williams et al., 2001; Youngblood et al., 2001). Dennen (as cited in Bonk, 2003) suggested that online instructors who are not as successful often adhere to the didactic approaches of instruction found in traditional, face-to-face settings which may not pull from the collective resources of the learners. In this regard, it is critical for instructors to be knowledgeable and informed about appropriate instructional design principles, including the incorporation of such salient learning theories as that generated through the socioconstructivist perspective. Bonk (2003) noted that when the online instructor accepts the need to change from that of lecturer to that of facilitator or moderator, that they will find their online learning environments invigorating.

Although a large body of research strongly advocated that instructors serve as facilitators or moderators of learning in the online learning venue, especially with regard to the threaded discussion board (Knowlton, 2001), a limited amount of research exists that describes the phenomenon of group development in asynchronous environments (Bonk & Cunningham, 1998; Carabajal et al., 2003; Im & Lee, 2003/2004; Johnson et al., 2002; McDonald & Gibson, 1998; Salmon, 2003; Sarker, Lau, & Sahay, 2001; Waltonen-Moore et al., 2006). Furthermore, little is known about how a facilitator can foster individual learners into an interactive, collaborative, and cohesive group of learners under the constraints of individual members who access the course at separate times and from separate locations (Johnson et al., 2002; Williams,

2001; Youngblood et al., 2001). As noted, online instructors are charged with a variety of responsibilities with regard to organizing, structuring, designing, facilitating, and monitoring the threaded discussion board. Thus, to gain a thorough understanding of the phenomenon of online group development, it is imperative to recognize how the instructor and group development intersect, as is seen in the following passage:

Awareness of the theoretical basis for group growth and development and the interpersonal issues involved will hopefully encourage designers of courses and computer conferencing systems to consider group activities and interactions in their designs, as well as encourage instructors to facilitate and manage group interactions more productively (McDonald & Gibson, 1998, p. 21).

Group Development Theory

There are numerous models of group development that have been derived based on research conducted on groups as they exist in traditional, face-to-face settings. Initially developed as early as the 1920s, the topic gained most of its prominence after the 1950s (Hare, 1973). Much of this research was conducted on groups as they performed in workplace and training, therapeutic, or ad hoc experimental environments. With the advent of the Internet and its subsequent creation of the ability of groups to meet both synchronously and asynchronously through computer conferencing technologies, little is known about group development in the virtual world. Moreover, even less exists within the literature on the development of groups in online learning environments (Carabajal et al., 2003; McDonald & Gibson, 1998).

This section of the literature review highlights some of the more prominent group development theories that evolved from research originally conducted on traditional, face-to-face groups, as well as those that have only recently begun to

emerge in relation to the virtual learning realm. An important note, given the new and unique nature of the online learning environment researchers have called for the end of studies that compare models developed in a traditional setting to that of the online setting (Carabajal et al., 2003). However, because several of the studies that do exist in the virtual realm have compared their results to those of the traditional models, it is necessary and pertinent to discuss group development from a traditional perspective.

Traditional Group Development Theory

As a precursor to the review of literature that exists on group development theory, several researchers agree that there are three primary classifications of group development models that exist in the literature: progressive, cyclical, and nonsequential (Carabajal et al., 2003; Mennecke, Hoffer, & Wynne, 1992). A description of the more prominent models found within each major category follows.

Progressive Models

Within the progressive realm, groups are described as an entity that develops over time (Mennecke et al., 1992). The equilibrium model (Table 1) was developed by Bales (1950) through the observation of groups in both laboratory and natural settings over many years (Hare, 1973) and is based on group interaction in which members continually attempt to balance both instrumental needs (task-oriented) with expressive needs (social/emotional). Bales' system for categorizing interaction is referred to as Interaction Process Analysis and consists of 12 categories: shows solidarity, shows tension release, shows agreement, gives suggestion, gives opinion, gives information, asks for information, asks for opinion, asks for suggestion, shows

Table 1

Group Development: Progressive Models

Author(s)	Setting(s)	Method(s)	Phases/Stages
Bales (1950)	Lab/natural	Observation	Orientation, Evaluation, & Control
Benis & Shepard (1956)	Human relations training groups	Observation/ Interpretive	Dependence: Dependence-flight, Counterdependence-flight and Resolution-catharsis Interdependence: Enchantment-flight, Disenchantment-flight, and Consensual validation
Tuckman (1965), Tuckman & Jensen (1977)	Variety of groups	Synthesis of 50 research articles	Forming, Storming, Norming, Performing, and Adjourning

disagreement, shows tension, and shows antagonism. His theory believes that groups who meet more than once go through phases which include: (a) an *orientation* where members ask for and receive information, (b) an *evaluation* period characterized by members asking for and receiving opinions, and (c) a *control* phase in which members exert norms (Bales). In order for groups to thrive, they must successfully negotiate its tasks and take care of members' socio-emotional needs (Carabajal, et al., 2003; Hare; Mennecke et al., 1992). The tendency to move between these two needs is noted as an "equilibrium problem" in which "Pendulum-like swings in activity occur as members become more absorbed in the task and neglect individual member needs and then lose sight of the task as they turn their attention to group solidarity" (Hare, p. 272).

Benis and Shepard (1956) developed a linear-progressive model based on observational and interpretive research conducted within human relations training groups (see Table 1). Their model purports that members traverse through two primary phases which include *dependence* and *interdependence*, each with three subphases. In this sense, “As members joining a new group, they face two areas of internal uncertainty: they are concerned about dependence (how they will relate to authority) and interdependence (how they will work out the personal relations with peers)” (Hare, 1973, p. 277). Within this model, the *dependence-flight* subphase is characterized as a period of anxiety in which there is an overt sense of dependency on the trainer. In the *counterdependence-flight* subphase, derision exists as one group attempts to add structure, and the other defies it. A third subphase is that of *resolution-catharsis*, described as the near dissolution of the group, with the ultimate resolution consisting of members who come to terms with dependency issues on the trainer. With dependency issues resolved, a fourth subphase, *enchantment-flight*, emerges and is characterized as a tentative cohesion which is quickly displaced by the fifth subphase, *disenchantment-flight*. In this subphase members concern themselves with how close or removed they should be to other group members and they question group goals (Hare, p. 280). The sixth subphase, *consensual validation*, evidences a maturity in the group’s ability to communicate, thus more productively resolving interdependency issues (Bennis & Shepard, 1956; Mennecke et al., 1992). In a summary of these phases, Hare noted the following:

the evolution from Phase I to Phase II represents not only a change in emphasis from power to affection, but also from role to personality. Phase I activity generally centers on broad role distinctions such as class, ethnic

background, and professional interests. Phase II activity involves a deeper concern with personality modalities, such as reaction to failure, warmth, retaliation, and anxiety. (p. 280).

Tuckman's (1965) progressive model of group development originally focused on four linear stages that were derived based on an analysis and synthesis of 50 group development studies which stemmed from a variety of environments including therapeutic, training, natural settings (i.e., advisory council), and laboratories. Revised by Tuckman and Jensen in 1977, a fifth stage was added (see Table 1). This model believes that groups progress through the following stages: (a) *forming*, which includes the identification of group structure and task behavior and dependence; (b) *storming*, conflict within the group which can lead to polarization; (c) *norming*, a result of the cohesion that exists from overcoming conflict; (d) *performing*, where structural issues are resolved and member roles become flexible; and (e) *mourning*, where members deal with group culmination (Tuckman, 1965; Tuckman & Jensen, 1977). Within each stage, two aspects are present and include group structure and task behavior (Hare, 1973), both of which have been compared to Bales' task-oriented and socio-emotional dimensions (Carabajal et al., 2003; Mennecke et al., 1992; Johnson et al., 2002).

Cyclical Models

The life-cycle model centers on a group's developmental process and is closely compared with a cycle of birth, growth, and death (or termination) (Carabajal et al., 2003). This process is either linear or iterative and the major emphasis of the group is placed on its coming to an end. One example is Mann, Gibard, and Hartman's (1967) model (Table 2) in which they derived a six-factor matrix to describe the behavior of individuals within four separate educational courses. Factor patterns for member

Table 2

Group Development: Life Cycle and Interactive Models

Author(s)	Setting(s)	Method(s)	Phases/Stages
Mann et al. (1967)	Educational course work	Factor analysis	Initial Complaining, Premature Enactment, Confrontation, Internalization, & Separation and Termination
Mills (1967)	Training groups in education	Content analysis	Encounter, Testing Boundaries & Modeling, Normative System Production, and Separation
Schutz (1966)	Group process training groups	Experimental, observation, interviews	Group Integration: Inclusion, Control, and Affection Group Resolution: Affection, Control, and Inclusion

performances include relations with the leader as (a) analyst, (b) authority, (c) manipulator, and (d) audience; (e) the effect of the leader on the ego state of the member, and (f) the commitment to the member-leader relationship (Hare, 1973).

Mann et al. specifically accentuated the nature of subgroups' behavior toward group leaders which resulted in phases consisting of (a) *initial complaining*, (b) *premature enactment*, (c) *confrontation*, (d) *internalization*, and (e) *separation and terminal review*, with each continuously having an effect on the group's center of gravity (Carabajal et al.; Hare; Mann et al.; Mennecke et al., 1992). Within each of these five phases exist both dominant subgroup and deviant subgroup feelings and behaviors in which "dominant subgroups account for the major characteristics of each phase, and

their diversity reminds us that ‘the group’ is in fact a collection of diverse forces and cliques of at least this complexity” (Mann et al., p.186).

Based on observations of training groups, a second life cycle model purported by Mills (1964) includes phases relevant to the process of group transformation (see Table 2). For his research, Mills utilized a section of a year-long course on Social Relations 120: The Interpretation of Interpersonal Behavior. Participants included 16 students from Harvard and Radcliffe Colleges. Utilizing content analysis, Mills recorded all class sessions and coded each statement. These resulting phases serve as critical periods in the life of the training group (Hare, 1973), with each phase having specific issues, activities, and emergent properties. In the first phase, *encounter*, members wonder whether the group will materialize and ponder items such as their own membership desires while participating in naive activism, disillusionment, and retrenchment. *Testing boundaries and modeling roles* in the second phase revolves around the issues of members’ desire to try on new roles, while activities center on commitment, authority, intimacy, and work. The third phase, *negotiating an indigenous normative system*, centers on the development of group norms and role performance. The fourth phase, *production*, stresses interpersonal communication and the creation of lasting value through activities such as observation, emotional expressions, interpretation, formulation, testing, internal checks, and diagnosis. The last phase, *separation*, focuses on members finding permanent value with the group and issues related to group dissolution as the group becomes a deceased entity (Mills).

Within the cyclical models are those that are iterative in nature and in which groups continuously work through a variety of interpersonal issues. Based on years of

experimental research which employed a multitude of quantitative measurements, Schutz's (1966) Fundamental Interpersonal Relationships)rientation (FIRO) theory (Table 2) included a postulate of group development which "asserts that that every group handles the same interpersonal problems in the same sequence, and that this sequence is the same as that encountered by the developing child as he [SIC] learns to relate to people" (p. 2). Two principles serve as a foundation: *group integration* and *group resolution*. Results indicate that through the process of group integration, members work through the recurring interpersonal issues of *inclusion*, *control*, and *affection* (Hare, 1973; Schutz, 1966). When groups arrive at the group resolution stage, they encounter the same issues, but in the opposite order: *affection*, *control*, and *inclusion* (Carabajal et al., 2003; McDonald & Gibson, 1998; Mennecke et al., 1992; Schutz). As such, "group members break their ties of affection, then they cease to control one another, and finally they give up their attendance and sense of identity with the group" (Hare, p. 282).

Nonsequential Models

The nonsequential models assume that groups do not have to necessarily go through stages of progression within their existence. Instead, these models argue that other contingent variables be examined for the impact that they may have on a group's level of functioning (Carabajal et al., 2003; Chidambaram & Bostrom, 1996).

McGrath (1990, 1991) proposed a group development model that described groups as multifunctional rather than sequential. The Time, Interaction, and Performance (TIP) theory (see Table 3) suggests that groups are constantly and

Table 3

Group Development: Nonsequential Models

Author(s)	Setting(s)	Method(s)	Modes or Periods
McGrath (1990, 1991) McGrath & Hollingshead, (1994)	Individual, group, and organizational contexts	Not stated	Inception, Problem- Solving, Conflict Res- olution, and Execution
Gersick (1988)	Education, fundraising, bank, hospital, psychiatrists, social workers, faculty	Grounded theory	Beginning, Mid-point, and End (with transition points between each)

concurrently involved in several distinct functions which include (a) production, (b) well-being, and (b) member support (McGrath and Hollingshead, 1994).

These functions represent, respectively, contributions of the group to its embedding organization, contributions of the group to its participating members, and contributions of the group to its own continued functioning as an intact social unit (McGrath & Hollingshead, p. 63).

There are four modes that group members engage in to carry out these functions:

inception, problem-solving, conflict resolution, and execution (Mennecke et al., 1992).

TIP theory is also concerned with the flow of work, the complexity of group processes, the effects of technology on work groups, and groups as dynamic systems (McGrath & Hollingshead).

Gersick's (1988) punctuated equilibrium model (see Table 3) focuses on timeframes for groups to complete team projects and evolved from a field study which examined group effectiveness. This was accomplished through the use of four groups (three student groups and one community fundraising) as they occurred over the winter of 1980 and spring of 1981 in which she observed groups in progress and analyzed

group transcripts. Her results were not wholly explained by the current group development literature at the time so she later employed the grounded theory approach and reanalyzed the group transcripts. In 1982-1983, Gersick added four additional groups of participants (bank task force, hospital administrators, psychiatrists and social workers, and university faculty). In the resulting model, three primary points within a group's time together emerged. These periods include the *beginning*, *mid-point*, and *end*; with two transition periods that rest between these points. The transition points are brief and abrupt, while the periods of time that exist in between these points represent more lengthy periods of which stability is common and in which work productivity is high (Gersick; Johnson et al., 2002; Mennecke et al., 1992). According to Gersick, "groups develop through the sudden formation, maintenance, and sudden revision of a framework of performance; the developmental process is a punctuated equilibrium" (p. 32).

Group Development in the Online Realm

Group development, as seen through the powerful capabilities offered by the Internet, has been noted as a field that is fertile and awaiting research initiatives (Carabajal et al., 2003). A review of the limited research that is available follows.

Research has found that groups can and do develop through asynchronous computer conferencing tools (McDonald & Gibson, 1998). A content analysis of course transcripts from a graduate level, computer-mediated course (CMC) held in 1995 with 19 students, yielded results that support Schutz's model of group development which purports that groups cycle through interpersonal issues of inclusion, control, and affection. Data consisted of the computer transcripts which

were sampled from early, middle, and late course transcripts, which resulted in a total of 838 speech segments. A coding scheme was developed based on the work of Lundgren and Henri and Rigault (as cited in McDonald & Gibson, 1998) and was used to analyze the computer transcripts. Results indicated that interpersonal issues akin to Schutz's FIRO model (described on p. 48) were present in this study. Affection was an overriding personal issue, gaining more prominence toward the end of the course; likewise, Inclusion segments were highest during week three. Control issues were not shown to peak after Inclusion, but they did decrease over time. McDonald and Gibson concluded that "people meeting, discussing, and collaborating as a group via computer conferencing have similar interpersonal issues, at comparable stages and proportions, as reported in the literature for face-to-face groups" (p. 20).

A grounded theory study examined the evolution of virtual team development over 14 weeks through the analysis of transcripts and the self-reflection pieces of 12 groups (Sarker et al., 2001). Each group was comprised of 8 to 10 people and represented both "internal" and "external" members from universities in Canada and the United States. The constant comparative method of analysis using an adapted grounded theory approach yielded four successive stages of virtual team development. The first stage, *initiation*, witnessed the achievement of role clarification, goals, and norms developed primarily through unidirectional talk. The second stage, *exploration*, included the active co-presence of members at a remote site and saw the proposal of group norms and group expectations defined. Although there was evidence of bi-directional talk, it was not specifically directed toward other individuals in particular, but to the group as a whole. The *integration* stage is characterized as having a higher

degree of mutuality, shared frames of reference, team-level identities, and as evidencing empathy and respect for other team members. The final stage, *completion*, denoted the delivery of the final project.

Specific to virtual learning team development in the online setting, Johnson et al. (2002) found their research results to model those of Tuckman's (1965) progressive model, as compared to Gersick's (1988) punctuated equilibrium model. Participants included 36 students enrolled in their first course in an online graduate degree program. Data collection over three months included the results from two virtual surveys which measured team process and team interaction, as well as logs from group chats, e-mails, and discussion board postings. Quantitative and qualitative analysis revealed an iterative model that consisted of the following stages: (a) *forming* through social interaction and goal setting; (b) *norming* of values such as punctuality, knowledge, and information sharing; and (c) *performing*, in which team leadership, team interaction, independence, and trust, were pronounced. Although a specific "storming" stage, as seen in Tuckman's model did not emerge, it was noted that when minimal conflict arose, it was swiftly handled. Other findings suggest: (a) initial team meetings were used to establish group norms; (b) task process established a way to work on team assignments, with groups becoming more efficient over time; (c) shared leadership emerged as a way to define member roles; and (d) problems that were encountered stemmed from factors such as lack of participation, lack of planning, schedules that conflicted, or individual disagreements.

Im and Lee (2003/2004) conducted a content analysis of both synchronous and asynchronous communication patterns among undergraduate students in a "Pedagogy

of Web-Based Instruction” course at a Korean cyber university. The data were collected through asynchronous discussion with 39 students reflecting 336 postings collected over 13 weeks and from synchronous discussion which utilized 21 students and their 2,820 postings which occurred over five discussion sessions. Postings were analyzed by (a) content related to topic, academic learning, discussion management, social interaction, or technical management and (b) content related to the development of a learning community which included three stages: social bond formation, information sharing, and the advanced stage. The first stage, *social bond formation*, included participant introductions; *information sharing* included a level of comfortableness that enabled participants to share with one another; and the *advanced stage* witnessed the participants’ application of “advanced metacognitive skills such as awareness, reflection, and evaluation” (p. 158). Synchronous discussion was found to promote social interaction while asynchronous discussion was found to better support task-oriented communications, perhaps due to learners’ ability to take their time in crafting responses, hence learning and knowledge obtainment were better suited to this venue. An additional result found female students to be more active in both types of discussion (synchronous and asynchronous).

Salmon (2003) used action research to analyze the content of messages primarily obtained from Master in Business Administration participants enrolled in an online university. She later included a content analysis of feedback obtained from tutors, focus groups, and colleagues through an e-moderators’ training program that she developed. From 1999-2003, data included the analysis of online messages and exit questionnaires from 600 participants in 40 courses using 10 different online course

platforms. Results yielded a five-stage model of teaching and learning online. Stage one, *access and motivation*, includes the exposure of the student and e-moderator to the technology, thus fostering the successful use of the medium and simultaneous motivation to continue its use. Stage two, *online socialization*, has as its main thrust the intent to further initiate comfortability within the new online environment so as to promote engagement through active involvement in a community of practice. *Information exchange* forms stage three, where participants view the classroom as a valuable source of information in which interaction includes not only their involvement with each other and the e-moderator, but with the course content as well. Stage four consists of *knowledge construction*, where participants “interact with each other in more exposed and participative ways. They formulate and write down their ideas or understanding of a topic. They read such messages from other participants and respond to them frequently” (Salmon, 2003, p. 41). In the last stage, *development*, participants are largely responsible for their own learning and need little support. Critical thinking skills and metacognition are present through their written reflection of their learning journeys.

Waltonen-Moore et al. (2006) conducted a case study utilizing the constant comparison method of analysis to analyze the threaded discussion board transcripts (239 total postings) of 18 graduate level professional development students in the education field. The original research goals sought to analyze the nature of online talk and resulted in a model of online group development that described increased levels of cognitive complexity and interaction between and among the participants over the duration of the course. Five stages emerged and include introduction, identification,

interaction, involvement, and inquiry. Within the model, labeled the Five I's of Online Group Development, the *introduction* stage fostered personal and professional disclosure, evidenced a strong affective component, and witnessed a heavy reference to technology. Messages were stated in the first person and were not reflective of course content. Branching, when an individual posts a reply to someone else's message, was not evident between learners. Stage two, *identification*, is distinguished as one in which members identified with and related to others. Learners used more inclusive language within their postings to acknowledge the thoughts and feelings expressed by others, even though they had not yet begun to directly reply (branch) to individuals. The third stage, *interaction*, evidenced the first sparks of conversation where direct replies to one another were seen for the first time, albeit in a limited amount. Messages reflected course content and conveyed a sense of trust and reliance on one another. The fourth stage, *involvement*, yielded a high sense of collaboration among the learners which included cohesion, cooperation, advice seeking, and high levels of interactivity, with more complex branching occurring. The final stage, *inquiry*, demonstrated high levels of critical thinking where learners applied, analyzed, synthesized, and evaluated the course content with regard to their professional lives. The interaction and branching between learners was balanced and most similar to a conversation. Waltonen-Moore et al. acknowledged that while their model shares similarities to other models, both in the traditional and online realms, no prior model of group development was specific enough in its description of group development to thoroughly explain the process of online group development as it emerged from their research. Because the Waltonen-Moore et al. research achieved a level of analysis most akin to Strauss and

Corbin's (1998) first analytic procedure known as open coding, an expansion of the Waltonen-Moore et al. research that exposes it to the rigors of grounded theory methodology would inevitably add to the present understanding of how learners participate within their written discourse with one another in the asynchronous learning environment. A further explanation of the merits of this type of research adheres to present calls to research which seek the cessation of comparative studies between distance education and its traditional classroom counterpart, as well as the inductive development of theory that allows for a more thorough understanding of an educational phenomenon (Carabajal et al., 2003; Glaser & Strauss, 1967; Moore, 1985; Saba, 2000; Strauss & Corbin, 1998).

As part of the concluding comments within this discussion on group development, it is imperative to address several key issues related to research methodology trends as they have evolved over the decades. In review of the literature presented within, it is apparent that the methodologies used to study the complex process of group development have varied over time to include research which stems from both the quantitative and qualitative spectrums. Mills (1964) categorized the original research on small groups as producing several modes of inquiry which included:

- (1) controlled experimentation in the laboratory; (2) analysis in the "field" or in organizational settings; (3) clinical analysis stimulated by but not restricted to psychoanalytic interpretation of therapy and training groups; and (4) application of systematic classificatory schemes for comparing frequencies and trends of events through time and across groups. (p. 1)

Framed in a more contemporary perspective that specifically references distance education, two calls to research have emerged that are relevant to this discussion. One

current call to research compels researchers to end studies that compare distance education to its face-to-face counterpart (Saba, 2000). Saba noted, “Although researchers continue to conduct comparative studies, their usefulness in revealing more information has diminished over the years; invariably, they have returned a finding of ‘no significant difference’ between various forms of instruction” (p. 5, paragraph 3). Carabajal et al. (2003) further denoted the necessity to end comparative studies between traditional group development and online group development. These authors described computer mediated communication as “a unique educational medium, a domain that challenges distance educators to explore group development theory and research from a new perspective” noting that “technological mediation alters the very nature of the communication patterns that occur” (p. 231).

Garrison (2000) affirmed that asynchronous written communication is a medium with very different characteristics when compared to real-time verbal communication. As such, written discourse encourages “reflection and precision” while verbal communication is more “spontaneous and fleeting” (p. 9, paragraph 2). Moreover, McDonald and Gibson (1998) asserted that this newer learning environment requires not only adjustments in teaching style but also demands a more thorough understanding of online group dynamics and development in order to help learners better understand what is expected of them and how to participate. From these perspectives, the development of groups in asynchronous settings which utilize CMC as the primary method of discourse is seen as a new entity worthy of research that uncovers patterns and interactions specific to the uniqueness of this setting.

A second call to research emphasized methodologies that are inductive in nature and that can be used to build models or construct theory as opposed to those that may be more deductive and experimental in nature (Carabajal et al., 2003). Moore (1985) asserted that distance education is in need of two primary types of research: one that helps solve problems and one that develops theory. Moore strongly advocated the use of grounded theory methodology, which supports the inductive articulation of a substantive theory in relation to an educational phenomenon (Glaser & Strauss, 1967; Strauss & Corbin, 1998). Moore added the following with regard to grounded theory:

Theory can be inductively generated by systematically analysing [SIC] empirical data, the key to successful theory development being the comparative method. In order to discover basic conceptual elements to build into a theory we have to compare similar and dissimilar situations or events. The data for these comparisons can come from many sources, including documents and records...The aim must be not to focus on a single case, but to use comparative methods to identify emerging categories and classes of phenomena. (p. 41)

Garrison (2000) suggested that theory development within distance education as a whole is a dilemma, given the multiple dimensions that need to be analyzed. However, Garrison specifically singled out the unique opening that exists to those who are compelled to develop theory related to computer mediated communication, noting it as “both an opportunity and a challenge” (p. 9, paragraph 2). As such, the current calls to research bear much relevance to current researchers who wish to examine the nature of group development in the online asynchronous setting.

In summary, a variety of literature that pertained to the phenomenon of group development was reviewed in this section. Originally stemming from research in a traditional setting (face-to-face), some of the more prominent examples of group

development models and theories were described and included those categorized as progressive, cyclical, or non-sequential. With the advent of distance education, and specifically the role of computer mediated communication, new models of group development relating to the online realm have only recently begun to emerge.

Important to contemporary research initiatives, current calls to research recommend the study of online group development in natural settings through the use of non-comparative studies which seek the induction of models and theories.

Model Selection

The Five I's of Online Group Development (Waltonen-Moore et al., 2006) was selected as the model to further examine the phenomenon of online group development for several reasons. Of primary importance was the fact that this model directly addressed two of the most salient issues in the design of effective online pedagogy: interaction and critical thinking, both of which are considered core ingredients in the design of web-based instruction (Knowlton, 2001; Jung et al., 2002). Although two additional online group development models included these components in their stages of development (Im & Lee, 2003-2004; Salmon, 2003), the Waltonen-Moore et al. model was selected because of the specificity illustrated within and across each stage, especially as it speaks to the evolvement of these two critical elements over time. To illustrate, although there is definite overlap between the Im and Lee model and the Waltonen-Moore et al. model with regard to all three of the Im and Lee stages (social bond formation, information sharing, and the advanced stage), the Im and Lee model is not explicit enough to explain the phenomenon unearthed by Waltonen-Moore et al. For example, whereas the Im and Lee model generally referenced increased levels of

interaction over time, it did not mention components of communication such as “branching,” “online listening,” or the type of language used by the learners, as did the Waltonen-Moore et al. model. Similarly, although the Salmon model was the most parallel to the Waltonen-Moore et al. model, as both outlined five specific stages through an examination of the role of interaction and critical thinking, distinct differences between and among the stages exist and thus, warrant further investigation of the Waltonen-Moore et al. model. Specifically, whereas Salmon’s first stage, *access and motivation*, centered on the need to provide technology assistance in order to keep students motivated to continue with its use, Waltonen-Moore et al. also addressed technology in their first stage, *introduction*, but incorporated it among other characteristics such as self-disclosure through personal and professional introductions, the use of first-person language, and a strong affective component that accompanied many of the messages.

A second reason for use of the Waltonen-Moore et al. (2006) model centered on methodology. If a current call to research specifies a need to develop inductive theory, the grounded theory approach is strongly suggested because of its thorough and systematic examination of the data which is inductively used to generate theory (Glaser & Strauss, 1967; Haig, 1995; Moore, 1985; Strauss & Corbin, 1998). As part of grounded theory, the constant comparative method of analysis is utilized throughout its coding initiatives (Glaser & Strauss; Strauss and Corbin). This bore important relevance to the selection of the Waltonen-Moore et al. model, as this research utilized the constant comparative method of analysis to derive its online group development model. In essence, the initial stage of grounded theory’s open coding has already been

initiated (Glaser & Strauss; Strauss & Corbin) and is what produced the emergence of a *process* of online group development. Overtly omitted, however, was an examination of what conditions, or *structure*, may have enabled this process to unfold. Hence, an examination of both the *structure* and *process*, which was strongly promoted in Strauss and Corbin's (1998) three major levels of analyses (open, axial, and selective coding), became essential goals of a more comprehensive and detailed inquiry. Glaser and Strauss noted that the grounded theory methodology "especially facilitates the generation of theories of process, sequence, and change pertaining to organizations, positions, and social interaction" (p. 114). The Waltonen-Moore et al. model begs for continued analysis that would theoretically sample and saturate the population and subsequent data sets from which it originated (Strauss & Corbin).

A third reason for its selection is practical and logistical in nature. The researcher had access to the original data presented within the Waltonen-Moore et al. (2006) research, as well as to new, distinct data sets coming from additional and equivalent courses. This access provides the provisions necessary to expand the population and data set from the Waltonen-Moore et al. study, thus enabling theoretical saturation of the data to occur through the three major analytic coding prescriptives of grounded theory which include open, axial, and selective coding (Strauss & Corbin, 1998). As such, it is valid and reasonable that a grounded theory investigation using this particular model would ensue.

In conclusion, within the research questions specific to this proposal, the Five I's of Online Group Development (Waltonen-Moore et al., 2006) was selected as the model to compare fresh sets of data (Merriam, 1998). Through the employment of the

grounded theory methodology (Glaser & Strauss, 1967; Glaser, 1992; Strauss & Corbin, 1998) the model may remain in tact, be amended, or be abandoned altogether. Regardless of any of these outcomes, the analysis has the potential to impact the current level of knowledge that exists about a subject that is considered an “exciting and fertile field of research for distance educators” (Carabajal et al., 2003, p. 231). Furthermore, this research has the potential to result in a substantive theory of how groups develop online, thus providing practitioners and researchers with more knowledge about a phenomenon that must be understood if online learning climates continue to promote the tenets of the socioconstructivist learning theory as a guide to the appropriate design and delivery of online courses.

Summary

The delivery of education and training through the capabilities employed through web-based delivery mediums has encouraged practitioners to rethink how they design and deliver instruction. Socioconstructivist learning theory promotes learning that is fostered through interaction with others as the primary way to construct knowledge. Due to its emphasis on the social construction of knowledge and the tools available within web-based course management systems, this learning theory has dominated much of the recent literature. Of tantamount importance is the encouragement of learning communities that promote high levels of interaction and collaboration among learners. One of the primary ways that asynchronous interaction occurs in this setting is through the utilization of threaded discussion boards, which when designed effectively, can foster the interaction of community members and can increase the utilization of higher levels of critical thinking in the online setting.

Within web-based instruction, instructors take on a multifaceted role—that of facilitator or moderator. In this sense, attention to the process of group learning as seen through a group development perspective is imperative in order to best understand how to foster the ability of learners to feel comfortable communicating with one another in an asynchronous mode, thus overcoming their geographical and temporal separation. Attention to online group dynamics and development has as one of its primary strengths, the ability to enhance the learning outcomes of the participants involved.

A survey of group development literature included those paradigms that have transcended several decades of research—from the progressive, cyclical, and non-sequential models derived from studying individuals in face-to-face settings, as well as research that has only begun to emerge in the online educational setting. Although a diverse array of research methodologies exist from which to study group development, distance education researchers specifically call for the end of research which compares online group development to that of traditional group development (Carabajal et al., 2003) and that specifically addresses the critical need to develop inductive theory that can later be quantitatively tested (Carabajal et al.; Moore, 1985).

Although several models have explored group development through asynchronous computer mediated communication platforms, the Waltonen-Moore et al. (2006) model stands out with regard to its specificity in its stages that describe the progression of learners in light of two core components of online pedagogy which are considered crucial to effective design: interaction and critical thinking. The ability of the Five I's of Online Group Development to address these two salient ingredients in detail throughout the evolution of the online learning community that emerged in their

study, served as a primary reason for its selection. Additionally, the categorical description within the Waltonen-Moore et al. model would inevitably benefit from exposure to a more expanded and rigorous analysis capable of deriving theory that might explain and predict an important educational phenomenon (Strauss & Corbin, 1998). Whereas this model spoke with specificity to the *process* of group development, its analysis stopped prematurely at a stage comparable to conceptual ordering, or what is most akin to Strauss and Corbin's open coding procedure. As a result, this model does not provide insight into the *structure* that may have promoted the phenomenon of online group development. Moore (1995) specifically advocates for theory induced from the utilization of a qualitative methodology known as grounded theory (Glaser & Strauss, 1967; Glaser, 1992; Strauss & Corbin). Grounded theory methodology was utilized to carry out the following inquiry.

Research Questions

1. Using grounded theory methodology, what structure promotes and what process describes, the development of a community of learners as seen in asynchronous threaded discussion boards?
 2. What influence might instructors' instructional stances have on the group dynamics during online discussions?
 3. Do the interactive patterns of asynchronous threaded discussion boards as seen in five graduate level online professional development courses apply to the five-stage model of online group development proposed by Waltonen-Moore et al. (2006)?
- The grounded theory methodology and its major analytic coding prescriptions are thoroughly articulated in Chapter III.

CHAPTER III

METHODOLOGY

Restatement of the Problem

As distance education, and in particular, web-based instruction continues to explode in popularity (National Center for Education Statistics, 2004), so too, does the amount of literature which emphasizes that interaction in asynchronous learning environments is a fundamental component in the design and delivery of quality online learning environments (Bibeau, 2001; Bonk & Dennen, 2003; Institute for Higher Education Policy, 2000; Liaw & Huang, 2000; Palloff & Pratt, 2001; Porter, 2004). In fact, interaction is seen as paramount to the building and fostering of online learning communities (Bonk & Cunningham, 1998; Palloff & Pratt, 2001; Porter, 2004). In asynchronous learning environments, where learners access their courses at different times and from different locations, perhaps one of the most difficult challenges presented to the online instructor is fostering the development of online learning communities (Bonk et al., 2004). Furthermore, the ability to foster the cohesiveness necessary for a learning community to evolve into a group of learners who are productive, collaborative, and interactive becomes a challenge to not only the online instructor, but to the learners as well (Carabajal et al., 2003; Knowlton, 2001).

The primary way that this interactivity has been acknowledged and achieved in web-based instruction is through a tool typically known as the threaded discussion board. The threaded discussion board allows learners and instructors to post, read, and reply to an electronic “bulletin board,” which has the unique capability of storing the messages for later retrieval. Through this asynchronous tool, members of the course can access and contribute to class discussions at a time that is convenient to them, while never missing any important dialogue. Because of its asynchronous manner, the threaded discussion board provides learners with time to reflect and craft their postings, which can promote higher levels of critical thinking that serve to make knowledge construction more durable (Knowlton, 2001; Palloff & Pratt, 2001).

Despite the emphasis in the literature placed on interaction through the development of online learning communities, there is a notable dearth of literature related to how groups actually develop and evolve in online educational settings (Carabajal et al., 2003; McDonald & Gibson, 1998). A greater understanding of how to facilitate groups of learners into interactive, collaborative, and cohesive learning communities is sorely needed in order to establish a framework for practice. Distance education research specifically advocates for, and emphasizes the need for inductive theory to help ground research that can later be empirically tested through quantitative measures (Carabajal et al., 2003; Moore, 1985).

This research sought to develop an articulated understanding related to the nature of online group development through the systematic implementation of the grounded theory methodology which was used to examine the patterns of interaction as seen on the threaded discussion board, including its application to the Waltonen-Moore

et al. (2006) model of online group development. Furthermore, the potential influence of the instructors' instructional stances on group dynamics will also be analyzed. This chapter highlights the details of the Waltonen-Moore et al. study as well as the research questions, research design, population sample, and specific data collection and analysis strategies that were utilized in the development of a substantive theory.

Background of the Study

A study conducted by Waltonen-Moore et al. (2006) indicated that individuals can overcome geographical and temporal separation in their online discussion to evolve into a community of practice capable of evidencing high levels of interaction and critical thinking within asynchronous threaded discussion board postings. This research utilized a case study approach and the constant comparative method of analysis (Merriam, 1998) to analyze 239 threaded discussion board transcripts of 18 graduate-level students in a Guided Reading course at a large urban Midwestern university. The inquiry was guided by the following research question:

1. What interactive and/or experiential communication patterns occurred over time in the threaded discussion responses of graduate students participating in an electronic professional development course?

Written discourse evidenced progression through five sequential stages of online group development: *introduction*, *identification*, *interaction*, *involvement*, and *inquiry*. This specific group of learners began as “virtual” strangers who posted introductions on the threaded discussion board in which there was no interaction with one another, and grew into a group of collaborative, cohesive, and interactive individuals in which complex branching patterns emerged. In later stages of

development, learners sought the guidance and expertise of one another as they applied high levels of critical thinking in the application and evaluation of course objectives to their professional lives.

The Waltonen-Moore et al. (2006) research achieved a level of induction that is best described as conceptual ordering (Strauss & Corbin, 1998) with regard to the phenomenon of online group development. In this sense, the model depicted a *process* of online group development in that it was able to identify *how* persons act and interact. Sorely missing was an examination of the *structure* which would help identify *why* or the conditions that enabled the process to unfold. Lock (2002) describes a community as a process that is fluid and that is only able to evolve when conditions are nurturing. Additional analyzation processes that are parallel to the major analytical coding prescriptives set forth through grounded theory methodology (open, axial, and selective coding), would promote the exploration of concepts such as *structure* and *process* (Strauss & Corbin, 1998). Therefore, through a thorough analysis of the data, a theoretical explanatory framework that can be used as a guide to practice is likely to result (Strauss & Corbin, 1998).

The background of the Strauss and Corbin study provided a foundation for the present study, as the research objectives described within sought to enhance the findings through the addition of data sets and a more comprehensive analysis of the data. This research was guided by the following research questions:

Research Questions

1. Using grounded theory methodology, what structure promotes and what process describes, the development of a community of learners as seen in asynchronous threaded discussion boards?
2. What influence might instructors' instructional stances have on the group dynamics during online discussions?
3. Do the interactive patterns of asynchronous threaded discussion boards as seen in five graduate level online professional development courses apply to the five-stage model of online group development proposed by Waltonen-Moore et al. (2006)?

Procedures

A qualitative paradigm was chosen for this research because of its emphasis on studying the multiple realities of individuals from the individuals' perspectives as opposed to that of the researcher's (Merriam, 1998). In this sense, "qualitative research assumes that reality is constructed, multidimensional, and ever-changing" (Merriam, 1995, p. 54). The nature of the research questions lend themselves to an interpretive research perspective because they seek to understand an educational phenomenon through the building of abstractions, concepts, hypotheses, and theory (Merriam, 1998).

Within the qualitative paradigm, the specific methodology used was that of grounded theory (Glaser, 1992; Glaser & Strauss, 1967; Strauss & Corbin, 1998). Grounded theory (GT) has been touted by researchers as an excellent methodology for research that seeks to build inductive theory, as "few methodologies have the ontological and epistemological range of the grounded theory" (Sarker et al., 2001, p.

54). Originated by Glaser and Strauss, GT is defined as the development of theory that is grounded in the data. Strauss and Corbin specified it as “a nonmathematical process of interpretation, carried out for the purpose of discovering concepts and relationships in raw data and then organizing these into a theoretical explanatory scheme” (p. 11). These authors further advocated its use when research seeks to understand a phenomenon in which little is known and in which factors such as emotion and affect, as well as thought processes, may hold important relevance to the findings. Haig (1995) described GT as “a problem-oriented endeavor in which theories are abductively generated from robust data patterns, elaborated through the construction of plausible models, and justified in terms of their explanatory coherence” (paragraph 3).

The inherent nature of GT encourages inductive theory to be developed as it emerges from the data, thus allowing for theory that closely resembles reality (Glaser & Strauss, 1967; Strauss & Corbin, 1998). GT has a significant utility in that it can be used to increase understanding of a phenomenon, yet can also be used as a guide to practice through its ability to predict and explain (Strauss & Corbin, 1998). One of its primary features is that the generated theory can enhance one’s understanding of reality. In the area of online education, where effective pedagogy is still emerging (Palloff & Pratt, 2001), meaningful guides to instructional practice are critically needed (Bonk, 2003).

In this research, “comparative baseline data” (S. Kruse, personal communication, April 28, 2004) from the original Waltonen-Moore et al. (2006) study was analyzed and theoretically saturated in an effort to see how the Five I’s of Online Group Development apply to new data (Strauss & Corbin, 1998). Figure 1 illustrates a

selected example of findings from the original Waltonen-Moore et al. research. In this figure, the core category, online group development, and its five stages are graphically depicted according to their progressive nature.

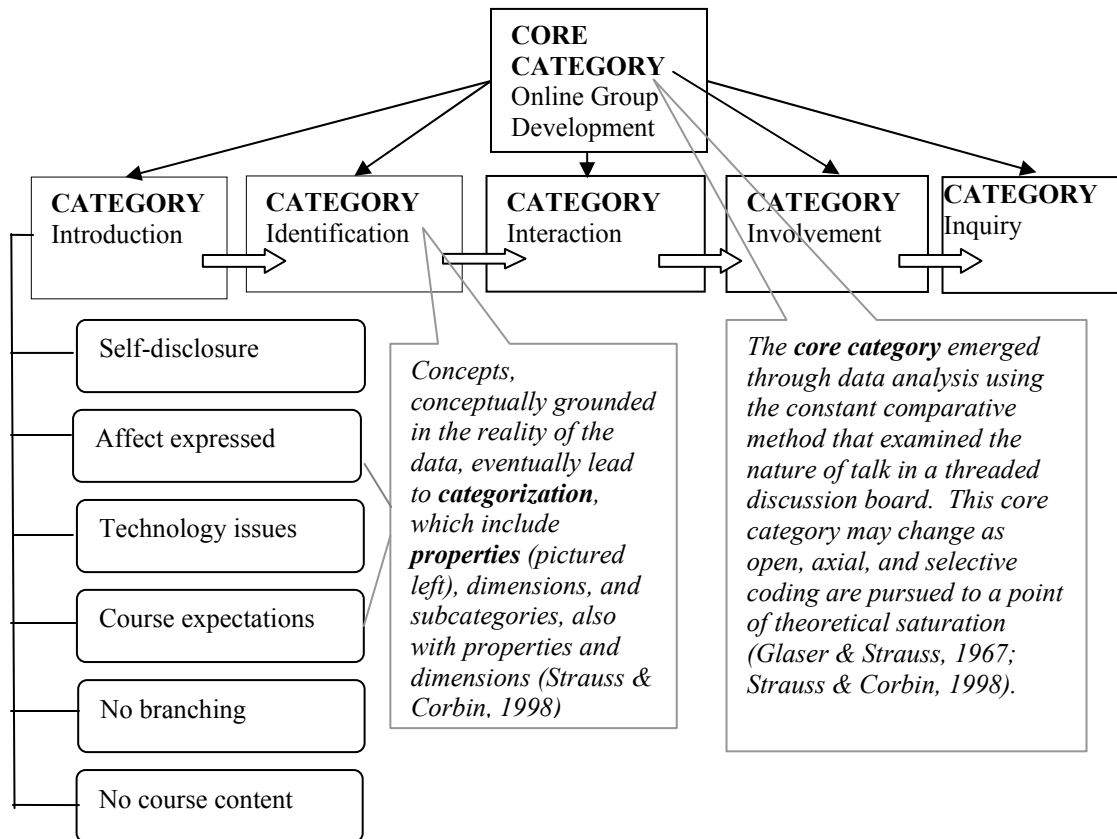


Figure 1. Emergent Formation of Categories (Waltonen-Moore et al., 2006)

Although the methodology used in the original research (Waltonen-Moore et al., 2006) is most akin to the open coding process specific to GT (to be described in more detail later) that seeks to answer “What is going on?” in the data, additional sampling was needed, particularly in the realm of Strauss and Corbin’s (1998) axial coding:

When analysts code axially, they look for answers to questions such as why or how come, where, when, how, and with what results, and in so doing they uncover relationships among categories. Answering these questions helps us to contextualize a phenomenon, that is, to locate it within a conditional structure and identify the “how” or the means through which a category is manifested...to relate structure with process (p. 127).

Subsequently, whereas the Waltonen-Moore et al. research yielded results within one group of learners which allowed basic properties of five categories to emerge, these categories and their basic properties were constantly compared to new data through the theoretical sampling of additional comparative web-based courses and through the simultaneous coding prescriptives set forth by grounded theory (Strauss & Corbin, 1998). In support, Strauss and Corbin emphasized the following points:

Process and structure are inextricably linked, and unless one understands the nature of their relationship (both to each other and to the phenomenon in question), it is difficult to truly grasp what is going on. If one studies **structure** only, then one learns **why** but not **how** certain events occur. If one studies **process** only, then one understands **how** persons act/interact but now **why**. One must study both structure and process to capture the dynamic and evolving nature of events (p. 127).

In order to achieve the objectives set forth within the research questions, it is pertinent and necessary to expand the data set utilized in the Waltonen-Moore et al., research, as well as to employ a research methodology that seeks to discover the salient role that both *process* and *structure* have in an educational phenomenon.

Participants

Participants in this study consisted of the learners and instructors who were theoretically sampled from a base of five sections of the same graduate level online professional development course. Funded by a state Department of Education, the specific course chosen for this research was one of a series of courses developed as part

of the Summer Institute for Reading Intervention (SIRI) program in this state. Guided Reading (GR), a one credit hour class, was originally designed and delivered as part of an online SIRI professional development workshop held at a large urban Midwestern university during 2002 that included no face-to-face contact. The conceptual framework for the GR course was “specifically designed to support classroom implementation of the English Language Arts standards” (Newton, Oswald, & Stuart, 2002, p. 17) in an effort to improve elementary students’ achievement rate in passing the reading portion of the state’s proficiency test. This particular web-based course was originally co-developed by three faculty members who offered the course to any teacher within the state. Participants were grouped as Kindergarten through Second Grade educators (K-2) or Third through Fourth Grade educators (3-4). In an effort to maximize validity and reliability, five sections of GR were utilized and included four sections from 2002 and one section from 2004, for a total of 74 learner participants.

GR was designed as a 5-week course and included five weekly modules. Several hard copy texts and electronic resources were utilized as resources. As noted on the syllabus, sustained electronic dialogue was a requirement. The public setting for the dialogue was designed as a threaded discussion board feature and was written into the course curricula. Within each module, one or more specific threaded discussion board prompts supplemented a particular module (Table 4).

Furthermore, four instructors were utilized as participants in this research; three of whom were Literacy faculty members at the university. These three individuals, all of whom were either tenure-track or tenured at the time of the courses, collaborated in

Table 4

Synopsis of Discussion Board Prompts

Module	Prompt
Intro	Meet your colleagues
1A*	Perceptions of guided reading
1B*	Advantages and disadvantages of approaches
2A*	Characteristics of good readers
2B*	Reaction to video segments on assessment
3	Management issues for guided reading
4	Favorite texts
5A/5B*	Developing/sharing your lesson plan

Note. * Modules with two prompts were distinguished by the researcher with “A” or “B.”

the development of all of the web-based SIRI courses offered. One of these faculty members brought more than 30 years of teaching expertise in the field of Literacy, both nationally and internationally. This individual also served as the Director of the Center for Literacy at a large urban institution as well as Chair of the Reading Review Board for an online state resource center whose emphasis is on supporting math, science, and reading instruction. A second faculty member, seasoned with 25 years of teaching experience, specialized in the integration of technology in literacy education, peer-led and online discussion, service learning in teacher education, and constructivist and culturally responsive approaches to literacy learning. A third faculty member with 25

years of elementary classroom teaching experience, provided expertise in the area of emergent writing development and instructional strategies to support word study.

An additional instructor was also included as a participant, as she instructed the 2004 course. This individual, at the time, was an international student from Africa who served as a graduate teaching assistant as part of her doctoral work in Literacy initiatives. With regard to designing and delivering the online curriculum, none of the faculty/instructors had ever developed curriculum for the online learning environment before. Similarly, whereas some of these individuals were familiar with the WebCT learning environment as a medium to enhance prior face-to-face courses, none of these individuals had taught online before.

The GR course sections were chosen for their potential to delineate and more thoroughly understand the online group development *process* (how), while simultaneously investigating its *structure* (why). The targeted populations are justified as a way to minimize and maximize differences. Glaser and Strauss (1967) noted,

Minimizing differences among comparison groups increases the possibility that the researcher will collect much similar data on a given category while he [sic] spots important differences not caught in earlier data collection. Similarities that bear on a category help verify its existence by verifying the data behind it. (p. 55)

The careful selection of participants described in detail above promoted similarities and differences (Table 5), an integral part of the discovery of a substantive theory. Glaser and Strauss (1967) noted “by maximizing or minimizing differences among comparative groups,” the researcher “can control the theoretical relevance of his [sic] data collection” (p. 55). In this instance, the learners and their respective faculty/

instructors were utilized to promote similarities and differences, thus potentially increasing the richness of their emic perspective (Gall, Borg, & Gall, 1996).

The researcher engaged with this study, was a doctoral student in the Department of Curricular and Instructional Studies who specialized in instructional technology. Her background in counseling/social work, group facilitation, adult education, and web-based technologies, spawned her desire to obtain a doctorate in her chosen field. Although never directly involved in Literacy or in K-12 teaching, the researcher was employed as a doctoral researcher with three of the four faculty members who taught the course. The result of that collaboration was published and is noted throughout this research (Waltonen-Moore et al., 2006). The researcher sought the objective observation written discourse as it occurred within the courses analyzed (Merriam, 1998). As such, the researcher brought an etic perspective as she sought to objectively describe the inductive results of this research (Gall et al., 1996).

Data for this study included all threaded discussion board transcripts as downloaded from WebCT's course archives for five sections of the course (a total of 838 transcribed posts), semi-structured interviews with the instructors (Appendix C), a survey for the students within a selected course (Appendix D), and available summative evaluations, as anonymously collected from the participants.

Table 5

Similarities and Differences of Participants in Guided Reading (GR) Courses

Similarities	Differences
I. Same course title and content	I. Distinct learners for each section - Course A (GR K-2 Spring 2002), n = 19 - Course B (GR 3-4 Spring 2002), n = 10 - Course C (GR K-2 Summer 2002), n = 19 - Course D (GR 3-4 Summer 2002), n = 11 - Course E (GR K-4 Fall 2004), n = 15
II. Course content co-developed by instructors 1, 2, or 3	II. Course was taught by various individuals: - Course A: Instructors 1, 2, & 3 - Course B: Instructor 1 - Course C: Instructor 2 - Course D: Instructor 1 - Course E: Instructor 4
III. Same discussion board prompts	III. Responses to prompts unique to each group: - Course A = 239 posts - Course B = 121 posts - Course C = 178 posts - Course D = 120 posts - Course E = 180 posts

Data Collection

Data collection consisted of the researcher serving as both the data collector and data analyst (Glaser, 1992; Merriam, 1998; Strauss & Corbin, 1998). Prior to the collection of data, consent to conduct this research was obtained (Appendix B) through

the Institutional Review Board in an effort to protect Human Subjects.

Deidentification of the course transcripts was completed to protect the identity and privacy of participants. Informed consent was provided to those individuals from whom interviews or surveys were sought (Appendices C and D). For the purpose of exposing potential researcher bias, a statement of the researcher's professional experience was included (Appendix E).

Data Analysis: Grounded Theory Methodology

Through the grounded theory methodology, the constant comparative technique of analysis was used to constantly compare incoming data (Dey, 1999; Glaser & Strauss, 1967; Glaser, 1992; Merriam, 1998; Strauss & Corbin, 1998). In the grounded theory methodology refined by Strauss and Corbin, data was systematically collected and analyzed according to the open coding, axial coding, and selective coding processes in an attempt to understand both the *structure* (why) and *process* (how) inherent with the paradigm of online group development. These processes are detailed below.

Open Coding

As the initial step in grounded theory, open coding included the process of microscopically dissecting and analyzing the data and coding it according to concepts that emerged, as well as the deductive process of hypothesizing about relationships that might exist between the categories (Strauss & Corbin, 1998). Throughout the open coding process, information was sought to help understand and answer "What is going on here?" The open coding process generated categories, as well as their respective

properties, and the dimensions of the properties (Table 6). The properties described a category, while the dimensions illustrated where the property fell on a continuum.

Table 6

Grounded Theory: Major Analytical Process of Open Coding

Procedure	Definitions/Components
Open Coding	1. Use constant comparative method to derive concepts. 2. Organize concepts into categories (concepts stand for a phenomena; an abstraction; represent the story of many reduced into conceptual terms). 3. Develop categories in terms of properties and dimensions. 4. Initial development of subcategories to specify conditions, actions/interactions, or consequences.

Note. Table developed from work of Strauss and Corbin (1998).

Through the initial stages of open coding, threaded discussion board transcripts were examined by phrases or sentences according to the chronological order that they appeared in each course. The baseline data from the Waltonen-Moore et al. (2006) research was used as a guide to question, analyze, compare incoming incidents, events, or happenings, and code the data (Glaser & Strauss, 1967; Strauss & Corbin, 1998). Keen attention was paid to those pieces of data that did not fit the baseline data, thus, the researcher integrated the outliers into the findings (Merriam, 1998). Once a substantial number of categories emerged, conceptualization commenced. This included naming concepts, defining categories, and developing categories in terms of

properties and dimensions (Strauss & Corbin, 1998). In this method, incoming data was broken down into discrete incidents, ideas, events, and acts and given a name.

Axial Coding

After the initial set of categories was identified, axial coding began (Strauss & Corbin, 1998). This phase related categories to their subcategories through further microscopic analysis of the data (Table 7). Four primary axial coding tasks were completed: (a) laying out the categorical properties and their respective dimensions; (b) identification of the various conditions, actions and interactions, and consequences associated with the phenomenon under study; (c) relating the categories to their subcategories; and (d) identification of how the major categories relate to each other.

To guide the axial coding initiatives, a paradigm was used to address two critical components of the theory: the *structure* and the *process* (Strauss & Corbin, 1998). In particular, this incorporated three components: (a) “conditions” which form the structure, circumstances or situations that the phenomena are rooted; (b) “actions/interactions” which are deliberate or routine responses to those issues, problems, happenings, or events that occur under the conditions; and (c) “consequences” of the actions/interactions.

Theoretical Sampling

Non-probability sampling was used within the grounded theory methodology (Cutcliffe, 2000). Specifically, this grounded theory utilized the construct of theoretical sampling as it is determined by the emerging theory (Cutcliffe; Glaser & Strauss, 1967; Glaser, 1992; Strauss & Corbin, 1998). To guide the researcher in the inductive and deductive processes of data collection and analysis, theoretical sensitivity

Table 7

Grounded Theory: Coding for the Paradigm Through the Axial Coding Process

Procedure	Definitions/Components
Axial Coding	Code for paradigm components of <i>structure</i> (conditional context) and <i>process</i> (sequences of evolving action/interaction): A. Conditions (why, where, how come, when) B. Actions/interactions (whom and how) C. Consequences (with what result)

Note. Table developed from work of Strauss and Corbin (1998).

was used (Glaser, 1992). In this sense, sampling of the data continued to occur until the researcher was no longer able to generate new analysis that significantly contributed or added to the categories (and their respective properties and dimensions), as well as to the subcategories (Glaser & Strauss, 1967). In this instance, a population of 74, a total of 838 threaded discussion board posts, and other sources of data (e.g., interviews with instructors and summative evaluations from the participants) served as a plentiful data resource pool from which theoretical saturation occurred.

Selective Coding

Selective coding integrated the categories with subcategories, as well as identified relationships between the categories (Strauss & Corbin, 1998). In essence, this process consisted of the reconstruction of the data into a potential substantive theory. A core category was sought as an umbrella category used to connect all

categories served as the first step in this process. The results from the Waltonen-Moore et al., (2006) research indicated that the core category was “online group development.” Additionally, theoretical sampling, which guided the open and axial coding processes, was relevant in this phase as it served to guide further analysis that was needed to fill in holes that existed in the writing of the theory (Strauss & Corbin). Trimming the theory, in which excess data that is not theoretically relevant to the theory is removed, was employed.

Memos and Diagrams

Memos and diagrams were utilized throughout the research process as tools to assist with the analysis and integration of raw data into its final integrated theory (Strauss & Corbin, 1998). Both types of written records are revered by Strauss and Corbin as procedures that are indispensable to the analytical process as they become a valuable means for tracking. Dey (1999) emphasized the importance of memoing in grounded theory:

Memos capture and keep track of the emerging theory. As they accumulate and mature they increase to the point of saturation and need to be sorted for writing up. Memos by covarying with coding, collecting, analyzing, other memoing, theoretical sampling and sorting, provide integrative binding and power to put it all together into a grounded theory. Memos are totally free and emergent. (p. 177)

Diagrams were used to produce a visual conceptualization of the analysis in that they depict relationships among concepts (Strauss and Corbin, 1998). Although diagrams during the initial open coding phase were sparse, it is in axial coding that the depiction of the data took shape, thus yielding “integrative diagrams to describe early relationships between a category and its subcategories or among several categories”

(Strauss & Corbin, p. 235). By the end of the final stages of analysis and theory construction, a diagram was constructed that served as a complex and dense depiction of the theory.

To summarize the procedures, Table 8 abbreviates the major steps that this research entailed. For reliability and validity purposes, which are described in the following section of this chapter, Table 8 also serves as an audit trail (Merriam, 1998; Strauss & Corbin, 1998).

Validity and Reliability

The researcher took precaution to ensure rigor by establishing that validity and reliability were dealt with in a manner consistent in the literature. Merriam (1995, 1998) has outlined techniques for enhancing the internal validity, reliability, and external validity of qualitative research. These suggestions were integrated into the research.

Internal validity is defined as a measure of how congruent the findings are with reality. Because GT methodology is grounded in the reality of the data, Glaser and Strauss (1967), Glaser (1992), and Strauss and Corbin (1998) argue the internal validity to be high given the nature of the method. To further ensure that there is strong internal validity, triangulation through the use of multiple data sources, member checks with the course instructors, a statement of the researcher's experience (Appendix E), and the submersion of the researcher in the data over a long period of time were employed (Merriam, 1995).

Table 8

Research Plan for Grounded Theory Proposal/Audit Trail

Major Steps	Specifics
IRB	1. Download application and submit to IRB
Collect Data	2. Download threaded discussion board data, upload to Word 3. Deidentify and print chronologically by module
Open Coding	4. Microscopically open up text/constant comparative method 5. Classification of concepts into categories 6. Code for properties, dimensions, and subcategories 7. Write memos/diagrams throughout process
Axial Coding	8. Code for properties, dimensions, subcategories 9. Begin to link subcategories to one another at points on axis 10. Begin coding for the paradigm 11. Write memos/diagrams throughout process
Theoretical Sampling	12. Conduct interviews with five instructors 13. Quantify data if helpful with explanatory framework 14. Examine summative evaluations; integrate 15. Write memos/diagrams throughout process
Selective Coding	16. Integrate findings into theoretical framework 17. Conduct member checks
Write Findings	18. Write findings, theoretically sample, develop theory 19. Refine writing, theoretically sample as needed

Note. Table developed in conjunction with text by Strauss & Corbin (1998).

Reliability is difficult to achieve in qualitative research due to the changing nature of human beings as studied in their “natural” settings (Merriam, 1998). In adherence to prescriptives set forth by Merriam (1995), triangulation through the use of

multiple data sources and an audit trail were employed as a way to set high standards of reliability. As part of the audit trail, Appendices F, G, and H are included to demonstrate coding initiatives.

External validity speaks to the generalizability of the findings to the general population. In a qualitative sense, Merriam (1995) suggests that the external validity of the findings is delegated to and decided by other researchers and practitioners. In this regard, it is up to the discretion of others to determine whether the results apply to their specific needs. To enhance the external validity of this research thick description, the use of several courses (multi-site designs), and numerous participants who represented a diverse cross-section of professional educators, were utilized (Merriam).

Delimitations and Limitations

One possible limitation of this study was that the data collection included courses that occurred in 5-week sessions. Perhaps a course that is longer in duration would yield different results. Second, because the participants were graduate level students, almost all of whom were employed as professional educators at the time they completed the course, the ability to generalize the findings beyond this study are limited with regard to subjects. Third, the results are also less generalizable as they evolved from identical course content across all five GR course sections. Fourth, this research may also be limited to educators who espouse similar teaching philosophies. This was evident in the fact that the course was co-developed and co-taught by three of the four instructors during the spring 2002 sections. This same course structure was used for the fourth instructor as well, who taught GR in 2004.

Summary

This research sought to make an important contribution to the understanding of how groups interact in online learning environments throughout their written discourse on asynchronous threaded discussion boards using the grounded theory methodology. Research conducted by Waltonen-Moore et al. (2006) suggested that online learners in graduate-level professional development courses did indeed evolve into a group of interactive and cohesive learners. Through a more thorough analysis that included the systematic incorporation of both *process* and *structure*, and through theoretical sensitivity, the researcher was vigilant and open to emergent findings (Glaser & Strauss, 1967; Strauss & Corbin, 1998). This research utilized comparative analysis that incorporated an application of the Waltonen-Moore et al. model to incoming data as well as analysis of the instructors' instructional stances as they impacted the group dynamics. The ultimate aim of the research questions was to contribute to the incipient dearth of knowledge that currently exists within the realm of online group development. This knowledge may be used as a guide to practice, thus further contributing to the broader notion of online pedagogy in which online instruction can be better designed, implemented, and facilitated, resulting in the enhanced learning of participants.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Summary of Analysis Used

This research sought to develop an articulated understanding related to the nature of online group development through the systematic examination of written discourse as seen on the asynchronous threaded discussion boards postings of five graduate-level professional development courses. Grounded theory was utilized to develop a substantive theory of an educational phenomenon related to the development of communities of learners as evidenced through computer-mediated communication (Strauss & Corbin, 1998). Microscopic analysis of the data ensued according to the open, axial, and selective coding prescriptives to develop an inductive framework from which to describe the patterns of written discourse in the online setting. This research specifically sought to answer the following questions throughout its analysis:

Research Question

1. Using grounded theory methodology, what structure promotes and what process describes the development of a community of learners as seen in asynchronous threaded discussion boards?
2. What influence might instructors' instructional stances have on the group dynamics during online discussions?

3. Do the interactive patterns of asynchronous threaded discussion boards as seen in five graduate level online professional development courses apply to the five-stage model of online group development proposed by Waltonen-Moore et al. (2006)?

As a preface to answering the research questions stated above, it is important to revisit the definition of theory. According to Strauss and Corbin (1998), a theory consists of

A set of well-developed categories (e.g., themes, concepts) that are systematically interrelated through statements of relationship to form a theoretical framework that explains some relevant social, psychological, educational, nursing, or other phenomenon. The statements of relationship explain who, what, when, where, why, how, and with what consequences an event occurs. (p. 22)

A theory goes beyond conceptual ordering, such as that which might be presented as steps or stages, and in contrast, moves into a framework in which a conditional context is appropriately explained and integrated (Strauss & Corbin).

In order to ascertain the answers to the research questions, the researcher engaged in open, axial, and selective coding of the data over an extended period of time (Strauss & Corbin, 1998). Open coding initiatives were used to discover repeated patterns of happenings, events, or actions/interactions, all of which represented what people did or said, alone or together, in response to the problems and situations in which they found themselves (Strauss & Corbin, 1998). The open coding initiatives conducted within this research enabled a *process* (how) to unfold which assisted the analyst in answering the primary question of what is going on in the data (Strauss & Corbin, 1998). Axial and selective coding initiatives were used to enhance these findings, and through theoretical saturation of the data, the *structure* (why) emerged.

Furthermore, selective coding resulted in identification of a core category and the subsequent development of a substantive theory that evidenced an integrated network of relationships among a multifaceted system of variables. This chapter provides an examination of the emergence of a substantive theory as it unfolded throughout the analytic process.

Descriptive Data

Data Sets

In an effort to elucidate the data sets from which the results are grounded, this section provides descriptive data from the five respective courses in which the subsequent theory was developed. Specifically, the data sets primarily involved the written discourse of five web-based courses entitled Guided Reading (GR). Table 9 demonstrates the volume of written discourse that was coded through microscopic analysis. In order to obtain this information, the researcher compiled all threaded discussion board postings for the five course sections, downloaded, and copied it into Microsoft Word, where the word count tool was utilized. This feature was used in an effort to capture the voluminous data that was analyzed within this research. As an example, the researcher coded one segment of text at a time (i.e., a sentence or bullet). Given the total word count at 127,473 (Table 9), when divided by 20 (a speech segment of 20 words per say), there were an approximate 6,373 speech segments within all data sets. It is important to note that Table 9 includes those postings contributed by the instructor, as well as the learners.

Table 9

Threaded Discussion Board Text: Data Sets Represented Numerically

	Word Count	Line Count	Page Count
GR 3-4 Spring 02 (Course A)	17,220	2,247	49
GR 3-4 Summer 02 (Course B)	15,111	2,003	44
GR K-2 Spring 02 (Course C)	50,015	6,110	145
GR K-2 Summer 02 (Course D)	25,761	3,493	76
GR K-4 Fall 04 (Course E)	19,366	2,343	51
Total	127,473	16,196	365

Note. These numbers represent approximately 6,363 speech segments.

To further interpret Table 9, the word, line, and page counts for GR K-2 Spring 02 (Course C) were significantly higher than the other four sections of the course. This group of participants was the most “verbose” group of all with regard to its written discourse. As such, they were the only group in which the vast majority typed their final assignment into the text of a threaded discussion post as compared to the other groups that primarily sent the assignment via the “attachment” option available on the threaded discussion post tool.

Participant Data

The participant data described in Table 10 reflects the numbers of individuals observed to access the course throughout its entire duration for each course section.

Table 10

Participant Data Sets (Learners Only) from Five Course Sections

	N	Female	Male	Course Hits
GR K-2 Spring 02 (Course A)	19	18	1	9899
GR 3-4 Spring 02 (Course B)	10	10	0	4276
GR K-2 Summer 02 (Course C)	19	18	1	9965
GR 3-4 Summer 02 (Course D)	11	11	0	5025
GR K-4 Fall 04 (Course E)	15	14	1	4924
Total (N)	74	71	3	34,089

Note. A “Course Hit” is the number of times the course was accessed by the participants.

Within the WebCT framework, the “Track Student” feature was utilized to track the dates of each participant’s “first access” and “last access” to the course. Only those participants who accessed the course on a regular basis from the start date to the end date are reflected in Table 10. Table 10 does not reflect those individuals determined to be non-participants. Non-participants describe those participants who never accessed, or only temporarily accessed, the course. In other words, non-completers are not included in the Table 10 data. While the non-completers are not counted in Table 10, their contributions to the threaded discussion board are counted in Table 9. The decision to include their discussion posts, even if they did not complete the course, was justified as follows. First, for those considered non-participants (those that did not

complete the course), the deidentified nature of the transcripts made it impossible to subtract their discussion posts so they were included in the transcript analysis. Second, this worked to the advantage of the researcher in that this was the fundamental way that data from the “outliers” was included in the analysis.

Of further salience with regard to the participants, is the issue of assuring anonymity. First, it is important to emphasize that while there is a small representation of males within the sample size, their posts were deidentified, thus making all posts non-gender specific. Second, with regard to the anonymity of the instructors’ posts, these were separated at the deidentification stage and denoted for analysis as “I” for instructor. This allowed the researcher to analyze the instructors’ posts as a separate entity.

Additional data consisted of instructor interviews that were used to triangulate the findings (Merriam, 1995). All four instructors were interviewed and all interview data was subsequently transcribed and coded.

Two separate attempts to survey the participants from Course E (the most recent course) through an e-mail survey and paper survey, which were both mailed to the participants, resulted in no returns. Thus, it was necessary to utilize the available summative course evaluations to triangulate the findings from the learner perspective. The data from these additional sources were integrated into the findings.

Introduction of Results

The Development of a Substantive Theory

The substantive theory that emerged from the analysis of data sets as it unfolded over time is illuminated within this chapter. As a preface to answering these questions it is necessary to address three key issues. First, as an introduction to the findings, a brief description of the overarching phenomenon (the core category) is provided. Second, throughout the description of this multifaceted theory, a diverse selection of labels was used to identify emerging concepts found within the data. Any definitions, concepts, or labels used throughout the remainder of this chapter are those that were induced from the raw data when it was reconstructed into its theoretical explanatory framework.

Third, it is salient to note that while Research Question 1 sought to address both the *process* and the *structure* as it contributed to the core category, it was impossible to cleanly sever these results from those associated with analysis pursuant to Research Question 2, which sought an examination of the instructional stance of the four instructors associated with the analyzed courses. The results specific to Research Question 2 were found to intricately correlate with the *structure* and thus tie in to the interconnected framework that resulted in the development of a substantive theory of online group development.

Research Question 1 (RQ1)

RQ1: Using grounded theory methodology, what structure promotes and what process describes, the development of a community of learners as seen in asynchronous threaded discussion boards?

The Emergence of a Substantive Theory and its Core Category: An Introduction

Through the constant comparative method, inductive analysis revealed an overarching core category (Strauss & Corbin, 1998) that encompassed the phenomenon which emerged from analysis—the development of online learning communities within the context of their asynchronous written discourse. This core category was derived during the selective coding phases of analysis and serves to summarize all of the research findings.

Results indicated that a community of learners emerged among a group of individuals throughout their asynchronous written discourse as witnessed in five separate sections of the same course, Guided Reading (GR). From these groups of participants, an overall sense of development evolved within their written discourse in which a collaborative spirit was engendered and from which the obtainment of higher levels of cognitive complexity were evident. This collaborative spirit grew out of an original instructor-designed prompt that asked participants to share about themselves, and evolved into a group of individuals who sought the collective input of their peers with very specific intentions of enhancing their own personal repertoire of professional knowledge.

Similarly, the patterns of written discourse also evidenced a willingness to help others out through the acts of not only “online listening” but through sharing information and providing support as possible through “online talk.” At this core level, group development in the online setting found online communication behavior to be of primary importance in determining the group’s level of functioning. This communicative behavior advanced beyond “online talking” and “online listening” and

included an articulated style within the prose itself. An example of this is described within one of the memos written by the researcher after initial open and axial coding phases of the analysis had commenced, “Participants expressed themselves in a variety of ways. Overall, the posts were several sentences in length each, used complete sentences, and incorporated a variety of varying types of information.” It was through analysis of these communicative patterns, both in *what* was said and *how* it was said, that the core category emerged.

The Integration of Process and Structure

Analysis revealed that individuals evolved into a learning community capable of illustrating growth and development in their formation, development, change, and accomplishment of tasks (Carabajal et al., 2003). The core category of online group development assumed five major categorical stages, all of which articulated a more thorough understanding of the *process* inherent within the phenomenon of how the groups developed within the online setting through their written discourse with one another. Open coding initiatives resulted in five primary categorical conclusions, all of which were further found to intersect and integrate the findings that emerged as a result of axial and selective coding. These five categorical entities emerged as stages that helped elucidate the course of action that each group underwent in their involvement with each other.

These five primary categories were induced from the raw data after the open coding phase of analysis were reduced and broken down into codes (Appendix F). These codes were assigned based on the systematic coding of segments of text as they appeared in chronological order throughout the discussion modules. Thus, each

module for every single course was analyzed. Many codes represent “in vivo coding,” which represented the participants’ own words (Strauss and Corbin, 1998).

Throughout axial coding initiatives, data from all five course sections were collapsed by module and patterns of relationships were sought among the codes. These patterns were subsequently arranged and grouped according to similar characteristics (Appendix G). Hence, the process of data reconstruction was commenced as notable and consistent themes were observed throughout each module.

In the selective coding phase, a conceptual labeling of the observed repeated patterns occurred and resulted in five major categorical stages which depicted patterns of written discourse. These repeated patterns led to the induction of a conceptual term that accurately described each of these five main stages.

As part of this microanalytical phase, indicators that further differentiated each stage were detailed (Appendix H). In this regard, the researcher returned to the original data sets and coded each post based on which stage a segment most represented. The indicators lend validity and reliability to the results of this research as they added another layer of coding to the analysis.

Five Major Online Group Development Stages

The linear fashion from which these groups evolved over time primarily referenced the *process* or the “how” of group development in the online setting and were labeled with the acronym GROUP: Greeting (G), Relating (R), Operating (O), Unifying (U), and Parting (P). These five major categorical stages are described briefly in Table 11 and at length throughout the next section of this chapter. Each of the five process stages directly related to the *process* involved in the becoming a

community of learners. These five stages summarize the overarching phenomenon of Online Group Development and were defined by the researcher as follows:

Online group development includes individuals who seek educational and/or professional development opportunities as a way to increase their own knowledge, and who, by means of a common method of computer-mediated communication (in this sense, asynchronous written discourse) evolve as a community of learners who develop socially, affectively, and cognitively with one another in such a manner as to promote group learning.

Table 11

Description of the Acronym GROUP

Each letter conceptualizes one major process stage of Online GROUP Development

G	Greeting (introduction of self on a professional, personal level)
R	Relating (introduction of personal experience with course subject)
O	Operating (working together to learn new course material)
U	Unifying (working together to integrate/apply course to real life)
P	Parting (culmination of the course/closure)

Note. A full description of the categories/stages is described within this chapter.

The development of this collective responsibility involved an overall sense of the ability to achieve mutual respect for one another as the participants sought to contribute and glean important information that assisted them with the obtainment of their professional development goals. Participants served as subject matter experts and through written “interaction,” processed their own knowledge and dialogued with colleagues about their integration of the new knowledge. This dialogue may or may

not have included direct communication between the participants such as that observed in a specific branch or reply to a particular individual, but through the very act of writing (“online talking”) and through reading (“online listening”), knowledge was generated and incorporated. The five major categorical stages are described in the following section. The results include an elaboration of each stage within Online GROUP Development as a description of the *process* or the “sequences of evolving action/interaction, changes in which can be traced to changes in structural conditions” (Strauss & Corbin, 1998, p. 100).

Major Categorical Descriptions

Stage I: Greeting

The first stage of the Online GROUP Development model was the introductory stage to the group’s development. Represented as the Greeting Stage, it predominated the earliest portion of the course. This stage was in direct response to a prompt that encouraged the participants to introduce themselves (Appendix I). In this period, participants introduced themselves with their name (usually first and last) and typically included a description of their professional work background that may have addressed their current professional position, educational background, something personal (perhaps familial), or their personal/professional goals for the course (Table 12). Additionally, technology experience (or inexperience) was frequently noted, as this was a prime opportunity to become acquainted with the web-based course management system.

Table 12

GREETING Stage as Evidenced in Written Discourse Across Five Course Sections

Stage I: Disclosure of self denoted as a professional/personal introduction

- ✓ Hi, I am [first and last name] and have taught for 27 years. As a Title 1 teacher... I would like to continue helping by furthering my knowledge of guided reading.
 - ✓ It is interesting to note that three of us have over 20 years experience yet we are all seeking ways to help our children become more competent readers.
 - ✓ HI, everyone. I am giving this a try after not being able to write to the ‘threaded discussion’ highlight on the introduction page.
 - ✓ I earned my BA in Elem Ed....I received my MAT from....I took SIRI last summer and look forward to my first online course.
 - ✓ Like the rest of you, I am anxious to take this class in this format.
 - ✓ I am excited to get started, so off to Module 1.
 - ✓ Did anyone have problems using Adobe Reader...?
 - ✓ Hi everyone. I signed up late so I apologize for signing in so late.
 - ✓ Finally!!! I’ve been trying since Monday!
-

Note: Text samples excerpted from all five course sections of Guided Reading (GR).

This first stage provided a foundation in which individuals familiarized themselves with their peers. This foundation supported the beginning development of a learning community. In this manner, individuals established themselves as a “person” as they described aspects of themselves that they were comfortable sharing. For example,

My name is [first and last name]. I teach first grade in [city]. I’ve had problems getting online and am just getting started. This is my first online

course and I am very nervous. I am excited to see others that teach at the primary level. I currently use some aspects of guided reading, but am excited to increase my knowledge and apply it to teaching.

Before the Greeting Stage, each person was an enrolled, yet “non-speaking” member of the course as none had yet begun to communicate within the public forum. Through a self-introduction, individuals established an online persona in which other members could get to know them within the computer-mediated environment. Within the introductory posts, emphasis was placed on the value of communication. For example, there was evidence of “online listening,” a phenomenon in which participants read others’ posts and subsequently commented on them, regardless of whether the listening occurred as a direct branch (reply) to the original post. An example follows:

Message no 10

Hi, my name is [first and last name] and I have never done an online class before, let alone a threaded message. Please bear with me! Teaching children to read is one of my soapbox issues and I hope to learn a great deal from this class. Thank you.

Message no 14: [Branch from no. 10]:

Hi [name], I agree with you on the lingo of this online course, threaded messages, browser, etc...I am just plodding along...[first name, last initial]

The Greeting Stage occurred within all five course sections. This is relevant to distinguish as Course E included a section of participants who largely consisted of members of a graduate cohort in which an orientation session was held at an off-campus location to introduce the participants to the online course. Interestingly, all participants (Courses A, B, C, D, and E) evidenced similar patterns across the five stages, but in the Greeting Stage, where Course E was posited as more likely to “stray” from this stage because of their pre-exposure to one another, they did not. The patterns of this graduate level cohort were consistent with the participants enrolled as part of a

professional development experience (Courses A, B, C, and D). The following illustrates the consistency of the Greeting Stage as seen in Course E, as well as triangulation of the concept of “group,” or the notion of an online learning community:

Message no. 11

Hi Everyone, I have to admit this is my first online course and I am a bit nervous about it. I will graduate in December!! Yeah!! I am currently teaching fourth grade. I am in my 6th year with the [name] City Schools. Next year, I will participate in a looping program. I will go to 3rd grade and “loop” up to the 4th grade. I am excited to learn and collaborate with my electronic colleagues. I welcome any ideas! [first name]

Message no. 16

Hi [first name], I looped this passed [SIC] year from 1st to 2nd grade. It has been an amazing experience. There is so much growth to see and the learning begins right away the second year. Good luck...I am sure it will be great! [first name]

Message no. 29

Welcome [first name] to our online group :) [first name, last initial]

Table 13 illustrates the frequency of posts that met the categorical stage description as analyzed across all five course sections. Each post was re-examined during the selective coding process using an indicator checklist (Appendix H) to determine which stage it best represented. The introduction prompt (Appendix I) fostered similarities observed within each posting as 100% of the resulting posts were determined to meet the Greeting Indicators, thus qualifying each post as belonging to the Greeting Stage.

In summary, the Greeting Stage served as the first stage in the development of the online learning communities. Largely characterized as the initial postings of the participants in response to an instructor-designed prompt (Appendix I) that encouraged a personal introduction, similarities existed across all five course sections which are

best described as an introduction. This Greeting Stage centered on personal/professional information that was voluntarily made available on the public threaded discussion board.

Table 13

Introduction Prompt: Frequency of Posts that Met Categorical Stage Description

Course	Total N	Greeting	Relating	Operating	Unifying	Parting
A	26	100% (26)	0%	0%	0%	0%
B	15	100% (15)	0%	0%	0%	0%
C	21	100% (21)	0%	0%	0%	0%
D	16	100% (16)	0%	0%	0%	0%
E	21	100% (21)	0%	0%	0%	0%
TOTAL	99	100% (99)	0%	0%	0%	0%

Note. N = number of participant posts (students only) per module.

Stage II: Relating

The second stage, *Relating*, evidenced the participants' initial attempt to relate to the course subject material through the act of connecting to the content from their own prior experience. Within this stage, participants responded to the actual course content for the first time and in essence, conveyed an introduction, as it was associated with the course topic (Table 14). In the prior stage, analysis revealed more of an introduction of self, whereas in this stage, the introduction focused on disclosure of one's familiarity with the course subject. It was typical for participants to express

experience or knowledge of the topic (i.e., “I think Guided Reading is...”). It was also common to express one’s inexperience with the topic as well (i.e., “I do not know enough yet.”).

Table 14

RELATING Stage as Evidenced in Written Discourse Across Five Course Sections

Stage II: Disclosure of self in relation to familiarity to the course subject matter

- ✓ Since I have limited experience [with subject]... judgments are difficult to make.
 - ✓ I have yet to try it but I would define it as a way in which one can work more individually with students. I think time management could be a problem.
 - ✓ I think Guided Reading (GR) is an excellent method of teaching. I admire people who can get all of the components together to use in their classroom.
 - ✓ I believe GR is a concept that I want to try. The whole setup thing is what worries me.
 - ✓ Ooops...sorry. I posted my original message to the main board.
 - ✓ I think it is a wonderful way to help children begin to understand how reading works.
 - ✓ Guided Reading is an effective way to meet the individual needs of students.
 - ✓ From my limited perspective, there are certain advantages as well as disadvantages...
 - ✓ I don’t really know too much about GR. I have heard about it a lot but never really seen teachers do it fully. I am hoping to learn a lot through this section.
-

Note. Text samples excerpted from all five course sections of Guided Reading (GR).

In essence, this second stage served as a self-assessment in that it allowed an individual to appraise and relate their level of working knowledge of the course subject

wherein they identified points of concern or specific areas that they needed assistance with. An example of this self-assessment is provided below:

I think guided reading is a wonderful way to help my kindergarten children begin to understand how reading works. I usually don't start using guided reading until sometime after the first of the year...However, with having the responsibility for 23 or more children, I have not yet found the perfect way to teach guided reading.

Important to note, the above posting was the individual's first content-related post.

This served as a pertinent clue in determining from which stage a post is categorized (Appendix H). In this instance, the participant defined the course subject in relation to their professional exposure, and in the last sentence, included the self-appraisal theme that was common in this stage. Similarly, subsequent elaboration as to what an individual's course objectives and goals were for the course may have been stated here if not previously done so in the Greeting Stage. For example, phrases such as "I still have a lot to learn," "The goal I have for myself is...", or "I am hoping that one of these days I will feel that I am doing it right and will feel comfortable doing what I do," were a common thread observed at this level in the group's functioning.

Reference to technology, although not completely absent, was minimized at this stage as compared to the first. There was a sense of familiarity with the discussion board tool and it no longer seemed to be an issue of relevance during this second phase. This is not to say that the technology issues did not resurface during later periods within the group's functioning, however, for the time being the majority of participants who were new to WebCT noted this as an issue.

The progression toward written discourse that focused on course content was guided by instructor-designed prompts (Appendix I) that asked participants to elaborate

on their perceptions of what guided reading is (Module 1A), understanding of the advantages and disadvantage of the course subject (Module 1B), and description of what constitutes a good reader (Module 2A).

Additional findings spoke to the prevalence of posts that represented the Relating Stage. The prompts designed by the instructors for Module 1A (Table 15) and Module 1B (Table 16) were found to most closely correlate with written discourse coded at the Relating Stage (89.28% and 85%, respectively). [In conjunction with Table 15, the discussion prompt for Module 1A was not given to participants in Course C, D, and E, thus making the data not available (N/A) for analysis.]

Table 15

Module 1A: Frequency of Posts That Met the Overall Categorical Stage Description

Course	N	G	R	O	U	P
A	12	0%	(10) 83.3%	(2) 16.67%	0%	0%
B	16	0%	(15) 93.75%	(1) 6.25%	0%	0%
C	N/A	0%	0%	0%	0%	0%
D	N/A	0%	0%	0%	0%	0%
E	N/A	0%	0%	0%	0%	0%
TOTAL	28	0%	(25) 89.28%	(3) 10.71%	0%	0%

Note. N = number of participant posts (students only) per module.

It is worth noting the collective progression of the posts as witnessed in Tables 15 and 16. Whereas both prompts had the majority of responses that met the indicators for the

Relating Stage (Appendix H), evidence of progression through group stages is also highlighted. For example, in conjunction with Module 1A, 89.28% of the discussion posts were coded at the Relating Stage, 10.71% at the Operating Stage, and 0% at the Unifying Stage (Table 15). For Module 1B, 85% qualified at the Relating Stage and 2.7% at the Operating Stage, and 12% at the Unifying Stage (Table 16). Although the results evidence a peak in the Relate Stage (Table 15) that subtly decreases in the next prompt for the module (Table 16), the decrease evidences a shift in the focus of the group to higher levels of group functioning.

Table 16

Module 1B: Frequency of Posts That Met the Overall Categorical Stage Description

Course	N	G	R	O	U	P
A	22	0%	68.18% (15)	22.7% (5)	9.01% (2)	0%
B	4	0%	75% (3)	25% (1)	0%	0%
C	18	0%	83% (15)	17% (3)	0%	0%
D	14	0%	100% (14)	0% (0)	0%	0%
E	17	0%	100% (17)	0% (0)	0%	0%
TOTAL	75	0%	85% (64)	2.7% (9)	12% (2)	0%

Note. N = number of participant posts (students only) per module.

In summary, the Relating Stage provided the first opportunity for participants to engage in discussion that was specifically course-content related. On an introductory level, it was common for participants to introduce their current level of experience with the course topic. Given that many of the participants were currently employed as teachers, this was common. However, for those who were substitutes or new to teaching, many could only relate what they thought the subject might be about. In comparison to the preceding stage that focused on an introduction of self, the second stage facilitated the participants' ability to relate their knowledge of the topic in an introductory sense.

Stage III: Operating

The third stage, *Operating*, describes the overt level of functioning not only with the course content, but with each other in order to reflect on react to incoming data and knowledge gained (Table 17). This included the active digestion of course material as it was taken in. Whereas the prior two stages, Greeting and Relating, were more introductory in nature and evidenced little “talk” that was a direct branch (reply) to another, this stage witnessed growth within the ways in which individuals shared content-related information and in which they reached out (through replies) to one another. This is evident in the following excerpt:

Message no. 101

My largest issue seems to be the ‘I don’t care’ students. Everyone is working in a group successfully and those students decide they will be disruptive and ruin it for everyone. In second grade I have tattlers so I have a few telling on whoever. That seems to be true for meeting with individual groups as well as having the whole class working in small groups at the same time....

Message no. 124

Hi [first name], I had a problem with students being off-task during guided reading also. What I came to realize quickly was that either those students did not know what they were supposed to be doing during that time or they were struggling with what they were reading. Your students that may be off task might need some deeper understanding of what you want them to do during the time or activities that are more appropriate for them. This really helped my students. [First name]

Table 17

OPERATING Stage as Evidenced in Written Discourse Across Five Course Sections

Stage III: Functional collaboration among members through digestion of new knowledge

- ✓ I enjoyed watching [model teacher] the most. I, too, am amazed at the focus of her literature circles without the teacher present.
 - ✓ It's always good to watch other teachers and pick up new ideas...
 - ✓ I think running records are the most accurate. What other assessments are you using?
 - ✓ What I found out...is that I know more about Guided Reading than I thought.
 - ✓ I really liked how [video mentor] popped in and out of the literature circles. The students were in control and I'd love to know how the teacher got them to that point.
 - ✓ [direct branch to participant] Hi [first name], I have journals with my kids but only respond to each child once a week. This makes it more manageable...
 - ✓ I want to know how teachers conference with their students...
 - ✓ [direct branch to participant] Please explain what you mean by...
-

Note. Text samples excerpted from all five course sections of Guided Reading (GR).

Additionally, participants experienced interaction with several modes or tools related to the web-based course platform. For example, participants watched videos

that were streamed into their personal computers. These videos presented model professionals in actual practice as they demonstrated the current topical discussion area. It was evident that although individuals struggled with the new knowledge at this phase and worked hard to digest it, the videos may have catapulted them into a moment of much deeper understanding of the topic. Participants were better able to gauge their level of understanding (or functioning), as well as glean new ideas and ways of thinking about the course subject area. One example that specifically referenced this active digestion and absorption of new knowledge is as follows:

I've always felt a piece missing in my approach to being more effective during reading sessions. I guess it's the authentic assessment...Watching the videos has pointed out the importance of frequent conferences. I especially liked the idea of writing back and forth with students in a daily book. Using this strategy in a small group might make it more manageable.

Although the written discourse evidenced an evolution with regard to communication that centered on the digestion of the course content and the acquisition of new knowledge, technological issues resurfaced in this stage. This was largely the result of the introduction of an instructional method (video streaming) that required learning a new medium. Operational difficulties were expressed with the location of the videos, getting the videos to download, and effectively being able to view each of the three model teachers in action. Despite these difficulties, participants sought help and did the best that they could in order to see and hear the videos. For example, one participant wrote, "Will someone please respond as to where you viewed the videos?...If you had the same problem and fixed it, will you tell me what you did? If you viewed the videos somewhere else, would you please clue me in on that?"

This phase of group development also fostered additional enthusiasm with regard to self-confidence. In this sense, even if participants struggled with the content, there was a surge of palpable energy expressed within the written discourse as numerous participants noted a sense of feeling more confident in their understanding of the course material.

This stage is best summarized as one in which participants established a foundation of knowledge (if they were relatively inexperienced) or as one in which they began to add to their repertoire of skills. Whereas the previous level facilitated the participants' identification of how their professional goals fit with the course objectives, the Operating Stage evidenced members who were engaged and functioning at higher levels. Participants operated with one another and the course content as they learned new material, saw and heard the topic in action through video streaming, and modified their definitions and prescriptions as to what the topic truly represented.

In conjunction, Table 18 references the nature of the posts as related to the Module 2A prompt. Although 33.3% of the total discussion comments were coded as qualifying at the Relating Stage, 64.86% of the posts were directly associated with the Operating Stage of development within learning communities. Thus a simultaneous progression into the Operational Stage occurred while the group, as a whole, advanced from the Relating Stage. In Module 2A, 33.3% (37 posts) of the collective group members were at the Relating Stage. In Module 2B (Table 19), there were none.

Table 18

Module 2A: Frequency of Posts That Met the Overall Categorical Stage Description

Course	N	G	R	O	U	P
A	23	0%	26.08% (6)	73.91% (17)	0%	0%
B	22	0%	95.45% (21)	4.54% (1)	0%	0%
C	19	0%	15.78% (3)	73.68% (14)	10.52% (2)	0%
D	20	0%	25% (5)	75% (15)	0%	0%
E	27	0%	0%	92.59% (25)	7.4% (2)	0%
TOTAL	111	0%	33.3% (37)	64.86% (72)	3.6% (4)	0%

Note. N = number of participant posts (students only) per module.

Further progression of the learning communities is noted in Table 19 as it related to the frequency of posts within the Module 2B prompt. It is at this point that the five groups of learners advanced from the Operating Stage (75.43%) to the Unifying Stage (24.56%). For example, in Module 2A, there were 72 posts, or 64.86% of the collective group members, at the Operating Stage (Table 18). In the Module 2B posts, there were 43 posts, or 74.43% (Table 19). Likewise, the Unifying Stage emerged from 3.6% (Table 18) to 24.56% (Table 19).

Table 19

Module 2B: Frequency of Posts That Met the Overall Categorical Stage Description

Course	N	G	R	O	U	P
A	N/A*	0%	0%	0%	0%	0%
B	14	0%	0%	92.85 % (13)	7.14% (1)	0%
C	10	0%	0%	100% (10)	0%	0%
D	19	0%	0%	52.63% (10)	47.36% (9)	0%
E	14	0%	0%	71.4% (10)	28.57% (4)	0%
TOTAL	57	0%	0%	75.43% (43)	24.56% (14)	0%

Note. N = number of participant posts (students only) per module. *Data not available (N/A) for Course A Module 2B.

Table 20 is based on the Module 3 discussion prompt (Appendix I) that focused on management issues for Guided Reading. Within this module, and unlike the former two modules, there was only one prompt designed for participant response. As noted in Table 20, the Module 3 prompt elicited an overall response of 68.6% of the posts that qualified at the Unifying Stage. Taken as a whole, there is a dramatic shift in the overall movement of discourse among the five primary groups of participants studied. For example, discourse shifted at the Operating Stage from 64.86% (Table 18), increased to 75.43% (Table 19), and then tapered off to 29.06% (Table 20). Similarly,

discourse at the Unifying Stage shifts from 3.6% (Table 18) to 24.56% (Table 19) to 68.6% (Table 20). These converse effects support the proposition that as one stage increases and tapers off, a subsequent stage gains in its momentum. As seen over time, while the Operating Stage peaked and declined, the Unifying Stage emerged slowly and gained in its momentum.

Table 20

Module 3: Frequency of Posts That Met the Overall Categorical Stage Description

Course	N	G	R	O	U	P
A	23	0%	0%	13.04% (3)	86.95% (20)	0%
B	10	0%	0%	50% (5)	50% (5)	0%
C	20	0%	0%	12% (3)	85% (17)	0%
D	13	0%	30.76% (4)	37.5% (3)	23.07% (3)	0%
E	22	0%	0%	36.36% (8)	63.63% (14)	0%
TOTAL	88	0%	4.65% (4)	29.06% (25)	68.6% (59)	0%

Note. N = number of participant posts (students only) per module.

In summary, the Operating Stage presented itself as a middle stage in the development of an online community of learners. It was commonplace in this stage for learners' discourse to dominate on themes related to the processing of, and reaction to,

incoming data. The concepts of “online talk” and “online listening” were notable as participants shared course content related problems and assisted others. As such, the participants were highly functional with the course content and with one another as they gained new knowledge.

Stage IV: Unifying

The fourth stage, *Unifying*, is summarized as one in which participants sought the ability to bring the course material together, as new knowledge was increasingly digested and assimilated. The fourth stage primarily differed from its predecessor, the Operating Stage, in that participants recognized their newfound knowledge, yet grappled with difficulties envisioned in the actual implementation of the techniques learned (Table 21).

The need to integrate and incorporate the knowledge into one’s repertoire is explicit in the discussion postings of the learning community. Many were written from an application and/or implementation perspective. Several examples follow:

- “I will modify...” (revision, modification)
- “This course has helped me...put it together.” (integrate/unify)
- “I plan to implement soon.” (future-oriented, goal-oriented)
- “I would welcome suggestions...” (collegiality)
- “I intend to take baby steps (as one of my esteemed colleagues recommended).” (goal-oriented/implementation/collegiality)
- “I am trying to fine-tune my management piece.” (revision/modification)

Table 21

UNIFYING Stage as Evidenced in Written Discourse Across Five Course Sections

Stage IV: The coalescence of collaboration and course topic implementation

- ✓ I know the key issue holding me back from fully implementing GR is the management issue. With 27 kids in my class, how can you guarantee they stay on task and that they are engaged in meaningful learning activities?
 - ✓ I have not found a schedule that allows me time to accomplish everything... Does anyone have a great way to set-up a classroom schedule that works?
 - ✓ ...I would like to increase my anecdotal records next year at guided reading time.
 - ✓ ...I would like to have more time to do individual conferences with students. Maybe by doing some journaling next year it will free up time for individual conferences. I'd like to know more about the STAR assessment on the computer.
 - ✓ ...I will modify these cards by writing strategies that I want to be sure to cover.
 - ✓ ...I feel comfortable with how I handle the Guided Reading groups and the process.
 - ✓ From reading the other comments here I can see the time factor is a problem for most people...The key is a good plan and a reasonable amount of expectations. I use a...
 - ✓ I have diligently worked at implementing guided reading into my language arts block...As I have read through our discussions I have noticed that lack of time to implement everything we need to do is a major concern..."
 - ✓
-

Note. Text samples excerpted from all five course sections of Guided Reading (GR).

Similarly, statements related to future goals were common as they referenced how to incorporate the skills and knowledge so as to consider potential problem areas. One comment expressed gratitude through a branched reply, "Thank you for the great ideas. I have been trying to come up with some new and innovative ways to reinforce sequencing skills. I will try this next week."

In this stage, an overt sense of respect, trust, and responsibility was palpable as participants explicitly evaluated how they would integrate the learning into their repertoire. Many sought answers, suggestions, and opinions from their peers. As a way to help answer or guide others, participants responded with feedback and advice. For those participants who were more experienced than others, feedback was provided as to how individuals might implement the new knowledge. An example of incorporating these advanced levels of experience into helping others achieve knowledge on an implementation level, is seen in the following excerpt,

Over the past 8 years, I have found centers, journal writing, and process writing to be most effective in my classroom while guided reading is happening. I still have the interruptions but, for the past two years I have had incredible parent volunteers. I stay after school for a few sessions to work with these parents on how to edit with my students on process writing. I also have them help me respond to the students' journals. They [the students] love hearing from someone else besides me.

As is evident in Table 22, the majority of posts (97.4%) written in response to the Module 4 prompt (Appendix I) evidenced solid replies that qualified at the Unifying Stage. The percentage was high as the participants engaged in reflective practice and made educated decisions in the selection of material that could be used to promote the principles of the course subject being taught. They used explanations to describe how they incorporated the material, which included specific skills. For example,

One of the stories we read in our basal that the children really like is "Chicken Sunday" by Patricia Polacco. We always read it as a whole class because it is a favorite, and then we watch "Rechenka's Eggs" on TV and feel connected to her... In preparing to write this note, I looked on the Internet to find more information about Ms. Polacco and found her web site. She has some great information on it and will email people and

classes directly! Wow, I think the children will really like this. I would now like to do mini literature circles using her other books...

Table 22

Module 4: Frequency of Posts That Met the Overall Categorical Stage Description

Course	N	G	R	O	U	P
A	22	0%	0%	0%	100% (22)	0%
B	9	0%	0%	0%	100% (9)	0%
C	17	0%	0%	0%	100% (17)	0%
D	12	0%	0%	0%	100% (12)	0%
E	17	0%	2.59% (2)	0%	100% (15)	0%
TOTAL	77	0%	2.59% (2)	0%	97.4% (75)	0%

Note. N = number of participant posts (students only) per module.

An important notation within Table 22 includes the 2.59% of the posts from Course E who seemed to “regress” toward the Relating Stage. This is perhaps due to the fact that Course E represented the majority of participants who were currently working toward their first graduate degree. It is posited by the researcher that Course E had more “novices” within the profession of education when compared to the postings of the other four courses.

In summary, the Unifying Stage was largely dominated by discussion board posts that referenced “putting it together” or synthesizing the information. These posts reflected participants who worked together beyond a level of being functional, and advanced into more in-depth discussion as to how they could incorporate their newfound knowledge into reality. Upon reaching this realm of development with the course content, self-confidence in the ability to successfully integrate the course content into real-life was apparent. Participants shared ideas that were illustrative, elaborative, and representative of authentic practice. They continued their growth as a group within their e-learning environment.

Stage V: Parting

The fifth stage, referred to as the *Parting Stage*, represented the culmination of preparations for the final stage of the course. In order to make separation successful, participants needed to complete the tasks at hand, which included bringing the course to closure. Posts represented task-centered behavior that focused on the completion of the final project, while other posts included some type of goodbye (Table 23). Through the production and generation of the end product (the final course assignment), participants were provided with an opportunity to move into the highest levels of cognitive interaction where they could demonstrate their ability to think critically through the evaluation stage of critical thinking (Bloom et al., 1956). The prompts that were designed for this final module sought to solicit the participants’ ability to synthesize the material learned and use their evaluative judgment in the design of the final lesson plan which would ideally display higher levels of thinking (Appendix I). Furthermore, there was anticipation that the participants would utilize

Table 23

PARTING Stage as Evidenced in Written Discourse Across Five Course Sections

Stage V: Closure of the group related to submission of final course product

- ✓ Take a look and tell me what you think. [see attached]
 - ✓ One class down...two more to go. [attachment of final course assignment]
 - ✓ Hi [first name], NICE job on your lesson plan! Just a thought...you could do a book walk and then have the students draw a picture of what they think the book will be about and then have them draw another picture when you have read the story. Have the children compare and contrast between the two of them. Great job!
 - ✓ Here is my draft lesson plan...I am open for any comments or suggestions.
 - ✓ It's been real!
 - ✓ I haven't received any feedback on this. I reviewed it again and this is my final submission. If there are any problems let me know. [lesson plan in text]
 - ✓ I am going to attempt to attach this lesson two ways. Thank you, [first and last name]
 - ✓ Thanks, all, this has been fun! [attachment of final course assignment]
 - ✓ I've learned so much about the standards while doing this project. I know that I do many of the indicators when I am teaching, but when you have to identify them, it makes them more meaningful. Hope someone will want to use this. [see attached]
 - ✓
-

Note. Text samples excerpted from all five course sections of Guided Reading (GR).

higher levels of critical thinking through the employment of peer critiques (evaluation) of the lesson plans. Although the majority of participants completed the final product, the mechanics involved in facilitating the peer review did not happen in each course. Instead, in some instances the instructors asked the participants to send the assignments

to the instructor, who would critique and return the lesson plan to the participant for additional revision if necessary.

Technological issues resurfaced as numerous posts referenced difficulty centered on an inability to locate or view certain features. For example, one participant wrote, “I still haven’t been able to view your lesson...I’ve been extremely frustrated with the technology.” In fact, when the plan to critique others’ lesson plans was clearly not working, it was noted even by the instructors. One instructor wrote, “Hi! We are finding it difficult to get lesson plans out for peer-review in a timely fashion...just resubmit your final lesson plans after you have received feedback from me!...”

Additional findings revealed a level of group functioning related to closure. Although not the predominant focus of the posts within this stage, an idea of closure or saying goodbye was evident. “It’s been real” or “This has been fun” are two such examples that acknowledge the course coming to an end.

As noted within Table 24, the prompts for Module 5A and 5B were combined as both focused on the final product. Module 5A included the submission of the preliminary lesson plan (that was ultimately to be peer critiqued and then returned for editing to its author) and Module 5B included the final submission. One hundred percent of the posts met the indicators for the Parting Stage each post dealt with the issues related to the successful separation from the course.

Table 24

*Module 5A/ 5B: Frequency of Posts That Met the Overall Categorical Stage**Description*

Course	N	G	R	O	U	P
A	35	0%	0%	0%	0%	100% (35)
B	17	0%	0%	0%	0%	100% (17)
C	15	0%	0%	0%	0%	100% (15)
D	8	0%	0%	0%	0%	100% (8)
E	38	0%	0%	0%	0%	100% (38)
TOTAL	113	0%	0%	0%	0%	100% (113)

Note. N = number of participant posts (students only) per module.

In summary, the Parting Stage focused on the successful separation from the course. A predominate theme observed within the discussion posts was the need to complete the final assignment, including its electronic submission. Additionally, this stage centered on the acknowledgement that the course was coming to an end as many participants parted with a farewell of sorts.

As noted thus far, Online GROUP Development denoted the stages of development as seen within an online group learning environment as evidenced within

patterns of asynchronous written discourse. The stages resulted from open, axial, and selective coding initiatives and, as such, describe a *process* that several small groups of individuals underwent in their development with the course content and with one another as it related to the online learning experience. As a five-stage *process*, the acronym, GROUP (Greeting, Relating, Operating, Unifying, and Parting) referenced the collective ability of the group to evidence higher levels of cognitive, social, and affective interaction as they evolved with one another and the course content over time.

As the GROUP process unfolded, it was noted throughout the analysis that the evolution across each stage seemed to follow the prompts as constructed and facilitated by the instructors (Appendix I). To more fully answer Research Question 1, this next section denotes the prevalence of the phenomenon as distinguished between each group (Course A, B, C, D, and E) as they worked through the threaded discussion board prompts (Appendix I). Specifically, to more fully understand the nature of the prompts with respect to Online GROUP development, five tables follow, one for each respective group (Tables 25, 26, 27, 28, and 29). Within these tables each community of learners is shown to evolve over time (by module). The progression from the introductory post through to the Module 5A/5B posts are represented as the percentages of posts determined to reflect each of the five stages of GROUP. Each group began with the Greeting Stage and evidenced steady progression as they successively moved through the GROUP stages. (This differs from the former section in that the latter focuses on the progression of each group primarily by prompt. Here we see the movement of each course by prompt.) For example, as seen in Table 25, Course A's progression across each of the five stages is tracked by percentages. As

noted, Course A began with 100% of the Introduction posts qualifying at the Greeting Stage. Within the Module 1A prompt, their discourse was split between Relating (83.3%) and Operating (16.67%). By Module 2A, the Operating Stage was shown to dominate (73.91%). This trend continued.

Table 25

Evidence of Progression Throughout Each Stage by Prompt: Course A

Module	N	G	R	O	U	P
Intro	26	100% (26)				
1A	12		83.3% (10)	16.67% (2)		
1B	22		68.18% (15)	22.7% (5)	9.01% (2)	
2A	23		26.08% (6)	73.91 (19)		
2B	N/A					
3	23			13.04 (3)	86.95% (20)	
4	22				100% (22)	
5A/5B	35					100% (113)

Note. N = total # of posts per prompt; In Course A, 19 participants completed the course.

As evidenced within Course A and all other course sections, the instructor-designed prompts guided discourse that the researcher termed “crossover posts.” As crossover posts, the written discourse evidenced split discourse as it simultaneously qualified across two or three stages. This phenomenon was observed consistently throughout the evolvment of each group (examples can be seen in Tables 25, 26, 27, 28, and 29). This is important to denote as it was observed that the progression of each group over time saw a varied approach from the participants with regard to the level of written discourse that they authored at a given point in time. In other words, although each group as a whole evidenced steady progression across time, there was variation among the individual participants with regard to their level of discourse. Using Table 26 to illustrate the crossover post phenomenon, the prompt for Module 1A evidenced discourse at the Relating and Operating Stages of development, while Module 1B evidenced discourse in the Relating and Operating stages. Whereas the Module 1A prompt had 93.75% of its discourse coded at the Relating Stage, the Module 1B prompt only evidenced discourse at 75%, representing a decline in the stage’s prominence over time. This decrease reinforces the *pliable* boundaries of GROUP as opposed to a more *rigid* succession of the group

Table 26

Evidence of Progression Throughout Each Stage by Prompt: Course B

Module	N	G	R	O	U	P
Intro	26	100% (26)				
1A	16		93.75 (15)	6.25 % (1)		
1B	4		75% (3)	25% (1)		
2A	22		95.4 % (21)	4.54% (1)		
2B	14			92.85% (13)	7.14% (1)	
3	10			50% (5)	50% (5)	
4	9				100% (9)	
5A/5B	38					100% (38)

Note. N = total # of posts per prompt; 10 participants were shown to complete the course.

The crossover post phenomenon is imperative to the framework in that it can be posited that whereas the stages represent the progressive nature of a group's existence, the individuals within may be at different stages than their peers. [Note: Within this research, only the nature of a community of learners (group) was analyzed as opposed

to individual development.] Table 27 illustrates the multiple stages of progression as elicited from the Module 2A prompt. As noted within Course C, this prompt bore 25% of its discourse as at the Relating Stage, 73.68% at the Operating Stage, and 10.52% at the Unifying Stage.

Table 27

Evidence of Progression Throughout Each Stage by Prompt: Course C

Module	N	G	R	O	U	P
Intro	21	100% (21)				
1A	N/A	N/A				
1B	18		83% (15)	17% (3)		
2A	19		25% (5)	73.68% (14)	10.52% (2)	
2B	10			100% (10)		
3	20			12% (3)	85% (17)	
4	17				100% (17)	
5A/5B	15					100% (15)

Note. N = total # of posts per prompt; 19 participants were shown to complete the course.

Course D (Table 28) and Course E (Table 29) witnessed slightly more rigid boundaries as the collective group progressed throughout its middle stages. For example, in Tables 28 and 29, 100% of the posts from the Introduction Module qualified at the Greeting Stage. Each group then responded to Module 1B with 100% of the posts as qualifying at the Relating Stage. The groups progressed together until Module 2A where the participants began to evidence different and more varied patterns within their dialogue. It is at Module 2A where the posts become split across stages of GROUP.

Of further interest, although some groups did progress from one stage to the next together, it was commonplace in the majority of the three middle stages (Relating, Operating, and Unifying or ROU) for each group to evidence crossover posts as they developed with one another. In this manner, all members of each group completed the introduction prompt with 100% of the postings qualifying at the Greeting Stage as well as the final prompts where 100% of those postings qualified at the Parting Stage of development. Examples of this movement can be seen across each of the five course sections.

Table 28

Evidence of Progression Throughout Each Stage by Prompt: Course D

Module	N	G	R	O	U	P
Intro	26	100% (26)				
1A	N/A					
1B	14		100% (14)			
2A	20		25% (5)	75% (15)		
2B	19			52.63% (10)	47.36% (9)	
3	13		30.76% (4)	37.5% (6)	23.07% (3)	
4	12				100% (12)	
5A/5B	8					100% (8)

Note. N = total posts for this prompt; 11 participants were shown to complete the course.

In Table 29, Course E progressed collectively until Module 2A, when 7.4% of posts met the Relating Stage Indicators (Appendix H) and 92.59% met the Operational Stage Indicators (Appendix H). Interestingly, this group continued to progress with crossover posts until the Module 4 prompt where two posts seemed to “regress” to the

Relating Stage and the rest of the group moved collectively to the Unifying Stage.

They then demonstrated 100% of their posts in the Parting Stage.

Table 29

Evidence of Progression Throughout Each Stage by Prompt: Course E

Module	N	G	R	O	U	P
Intro	21	100% (21)				
1A		N/A				
1B	17		100% (17)			
2A	27			7.4% (2)	92.59% (25)	
2B	14			71.4% (10)	28.57% (4)	
3	22			36.36 % (8)	63.63% (14)	
4	17	2.59% (2)			88.23% (15)	
5A/5B	38					100% (38)

Note. N=total # of posts per prompt; 15 participants were shown to complete the course.

In summary of Research Question 1 to this point in time, the progressive nature of the patterns of development of five online learning communities were described primarily through the *process* of Online GROUP Development as was evident in their

asynchronous written discourse. Although the development of the GROUP *process* across time by each group is indeed connected to the instructional design of the threaded discussion board prompts, the prompts did not discretely control the GROUP *process*. As such, the results do not yet speak directly to the *structure* that emerged. As demarcated in the following sections, each stage was further detailed as microanalysis yielded results that were formulated “into a logical, systematic, and explanatory scheme” (Strauss & Corbin, 1998). It is through this description that the *structure* emerged.

Properties and Subcategorical Descriptors of GROUP

Advanced microanalysis yielded further findings that were consistent within and across each course section. Each of the five major categorical descriptors represented as GROUP were noted to have several predominant properties that supported the integration of *process* and *structure*. Each of the five categories in GROUP were further refined through properties and subcategorical properties. Figure 1 illustrates the *process* of Online GROUP Development as a series of actions and interactions (Strauss & Corbin, 1998). The arrows denote the dynamic and ongoing unfolding of this *process* (GROUP) as it interacted with the four major properties that simultaneously evolved over time. Four major properties were determined to exist across the life of the group and included: course content interaction (C1), cognitive interaction (C2), collegial interaction (C3), and course platform interaction (C4). The label “4C Interaction” was established to summarize these properties of GROUP. They are illustrated as a dotted line throughout the GROUP process as each property was

found to contribute to the process of each learning group as it evolved as a learning community.

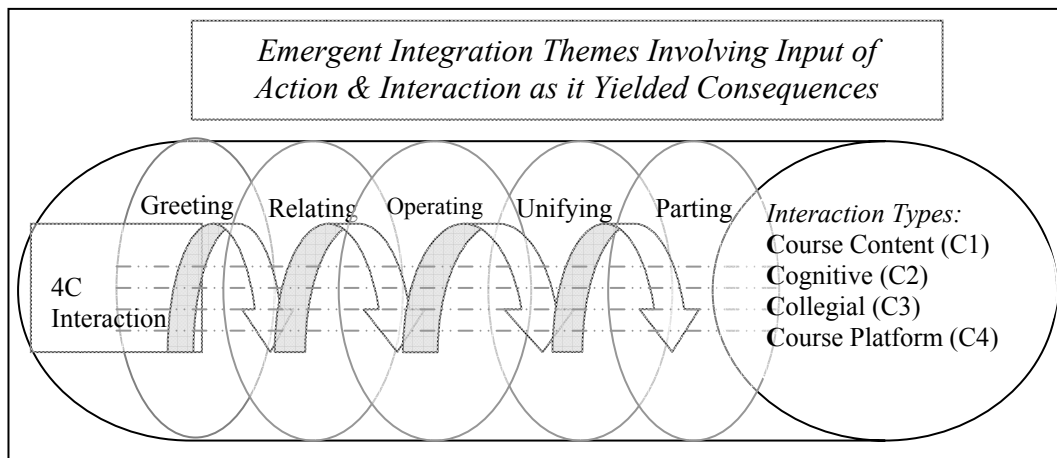


Figure 1. Emergent integration themes involving input of action & interaction as it yielded consequences

Property 1: Course Content (C1)

Course content represented the interaction that participants experienced with the actual course content found within their online course. This was noted as a primary property of the model as it was shown to be relevant to each stage, yet at distinguished intervals. As noted previously within the Greeting Stage, there was minimal to no discussion about the actual content for the course. This gradually increased and peaked in the Operating and Unifying Stages, and fell again during the Parting Stage. Within these middle stages, the discussion centered almost entirely on the course content.

Departure from course content was due to issues that were encountered with the course platform. For example, this detour is seen in the following post, which elaborated on the frustration of one participant as they interacted with the technology

(C4). Despite the difficulties, the individual continued the conversation, which centered on course content (C1), demonstrating their capability to stay on task and to operate at higher cognitive levels:

I'm a little frustrated with the videos. I couldn't get the ones in Module 1 to open and when they did, the video and sound was distorted. So, I downloaded Realplayer 8 (4 hour download) and I got the same quality. The videos in module 2 wouldn't open at all, so I went to the university to use a laptop figuring I could watch the videos but I got the same error message. I tried again on my home computer later and half the videos opened, but the sound was very distorted at times and the video portion just stopped. So, I haven't seen most of the videos, but it hasn't been because I didn't try. Anyway, I like the idea of a Day Book but I'm concerned that I wouldn't have the time to read and respond to the students enough...I like Taberski's idea of frequent conferences and I think I would do this rather than use a Day Book...I'd like to give my kids the opportunity to read each other's writing more, too.....Gosh, aren't you glad I didn't see all the videos.

Further microanalysis resulted in subcategorical descriptors, which further defined and classified key aspects of the course content property. As they each relate to the interaction with course content, the three subcategorical descriptors described below were found across all stages of Online GROUP Development in varying ranges. They are included as a way to further define and refine elements of the *process*.

Subcategorical descriptors of course content (C1).

- a) Experience with topic: this descriptor described the participants' level of experience with the course topic (range: none to high).
- b) Enthusiasm for the topic: this descriptor declared a participant's enthusiasm and eagerness to learn more about the topic (range: not specified to high).
- c) Self-appraisal: this descriptor described a continual analysis of self as seen in relation to the course content (range: not specified to high). For example,

as seen in earlier stages, Greeting and Relating, this was most evident as expressions of areas that an individual may have noted as a weakness.

Subsequently, as noted in the Unifying Stage, it spoke to the confidence gained as a result of the course.

Property 2: Cognitive Interaction (C2)

Cognitive interaction (C2) was a second property that was found to exist across all stages of GROUP. In this sense, the quality of the posts with regard to their ability to demonstrate evolving levels of critical thinking across time was observed as one of the predominant ways in which a group of learners developed within their written discourse.

Subcategorical descriptors of cognitive interaction.

- a) Critical Thinking: A post may have been described as evidencing no critical thinking to thinking that occurred progressively at the knowledge, comprehension, application, analysis, synthesis, and/or evaluation level (Bloom et al., 1956) (range: none to high).

The levels of cognitive complexity are based on the work of Bloom et al. (1956), who notes that information can be processed in such a manner as to result in a hierarchical fashion. Lower levels of thought processing exist at the knowledge level and can increase into higher levels such as comprehension, application, analysis, synthesis, and evaluation. It is in the later stages that critical thinking at its highest and in which durable forms of knowledge are supported (Knowlton, 2001). With regard to this research, the overall ability of the group to evidence posts that reflected a transformation from knowledge and comprehension levels to increased evidence of

application, analysis, synthesis, and evaluation increased over time. Each of the Online GROUP Development stages is significantly defined at the C2 property level (Table 30). The cognitive interaction is also observed across the indicators for each stage (see Appendix H).

Table 30

Evolution of Cognitive Interaction (C2) over Time

Stage	Majority of Posts Reflect
Greeting	Introduction of self: no critical thinking.
Relating	Preliminary definition of course subject area: knowledge-comprehension.
Operating	Active processing of new knowledge: comprehension/application.
Unifying	Application of new knowledge to real life. Implementation/real life setting. Analysis of what worked what did not work. Synthesization/putting it all together. Utilization of judgment to make decisions.
Parting	Course separation: culmination of learning into final course product which integrated higher levels of cognitive complexity within the assignment; closure.

Property 3: Collegial Interaction (C3)

Collegial interaction (C3) that occurred among and between colleagues was a third property found consistently across each stage within the GROUP model and also one that was strategically pursued by the instructors who provided the instructional

design for the course. Within collegial interaction, tones that resonated as social and affective were observed throughout analysis.

Subcategorical descriptors for collegial interaction. Subcategories descriptors included the following:

- a) Online Talk: Online talk referenced the written discourse of an individual as it was posted to the asynchronous threaded discussion board. Online talk was observed in a variety of fashions, whether a question, comment, opinion, or thought, and was used as a way to converse with colleagues. Online talk occurred in each GROUP stage and was dimensionalized within the ability of a post to evidence no connection to peers or as one in which a strong connection to peers was made (range: none to strong). For example, a strong connection to peers was a post that welcomed input from peers, such as, “I look forward to talking with you all.” In this sense there was an acknowledgement of the important role of the contributions of others.
- b) Online Listening: Online listening was observed in written discourse when a post or direct reply evidenced listening behavior. In other words, the author acknowledged a former posting by referencing it within the context of their written post. In this sense, it is evident that even if the participant did not directly reply (branch) to a specific person, they “heard” what was “said” and subsequently responded. Dimensionalized, a post may evidence no online listening to one that directly employs online listening (range: none to strong). Like Online talk, Online listening was observed across time throughout each stage of GROUP. An example of strong listening skills

includes the following, “It is interesting to note that three of us have over 20 years experience yet we are all seeking way to help our children become more competent readers.”

Property 4: Course Platform (C4)

A fourth property found across all stages of the GROUP model included interaction with the course platform (C4) or web-based system used to manage the asynchronous e-learning environment. In this instance, it was the WebCT online system in which the comprehensive course material, including the threaded discussion board postings, was stored and accessed. Analysis revealed discussion that ebbed and flowed between low to high levels of reference to the technology as it correlated to where or how a piece of course content could be accessed. For example, as seen in the Greeting Stage, discussion posts that referenced some aspect of the course platform were moderate in volume and then dropped off from none to low in the Relating Stage. In the Operating Stage of development, participants were simultaneously asked to discuss course content that was obtained from video streaming capabilities available within WebCT. Subsequently, postings peaked again in a moderate range. A similar phenomenon occurred where participants were once again asked to access a new facet of the technology available within the web-based course management system. In this instance, they were asked to submit a final product through a discussion board post, which triggered a high incidence of technological issues for those inexperienced with the “attachment” feature.

Subcategorical descriptors of course platform. Issues or incidents associated with the technology used to manage the web-based courses indicated that several

subcategories were held relevant across time. As all five stages of GROUP evolved, they intersected with the course platform, resulting in the following subcategorical descriptors which depict the complexity of the framework.

- a) Logistical Issues: Logistical issues were characterized as those challenges that arose throughout the course that related to the electronic nature of the medium. On a dimensional level, logistical issues were either absent or frequently referenced (range: none to high). In this manner, if any angle of the WebCT course platform was troublesome, it was noted. The majority of logistical issues were observed during the Greeting (beginning), Operating (middle), and Parting (end) stages. These challenges arose every time participants were asked to access an unfamiliar component of WebCT. As examples, accessing the video feature or attempting to use the attachment feature of the discussion board, led to posts with which exposure to these new course facets were problematic. In a summative evaluation, one participant noted her desire to have read the interview transcripts as opposed to “suffer” through the video streaming.
- b) Experience with Online System: Experience in the electronic environment was dimensionalized when posts addressed a participant’s acknowledgement of their experience or inexperience within an online learning environment (range: none to high). Examples of this subcategory included posts such as “This is my first online course” or “This is my second online course. I look forward to it.” This particular theme was most commonplace in the Greeting Stage.

In summary, this section presented results related to the further differentiation of each stage of Online GROUP Development. Four primary properties were found to exist at varying levels across all five stages (Course Content, Cognitive Interaction, Collegial Interaction, and Course Platform). These properties and their subcategories were the result of analysis that sought to relate the *process* of Online GROUP Development to its *structure*. It is salient to note that Strauss and Corbin (1998) emphasize,

What is important to us is that *process* be related to *structure*, that is, the alignment of actions/interactions to conditions, how these change from one stage to another, variations within a phase, and how the outcomes of one set of actions feed back into the context to become part of the conditions influencing the next set of actions/interactions (p. 169). Figure [2] represents the constant interplay of action and interaction as it resulted in consequences over time, with the ultimate unfolding of the core category linking the system together (Strauss & Corbin).

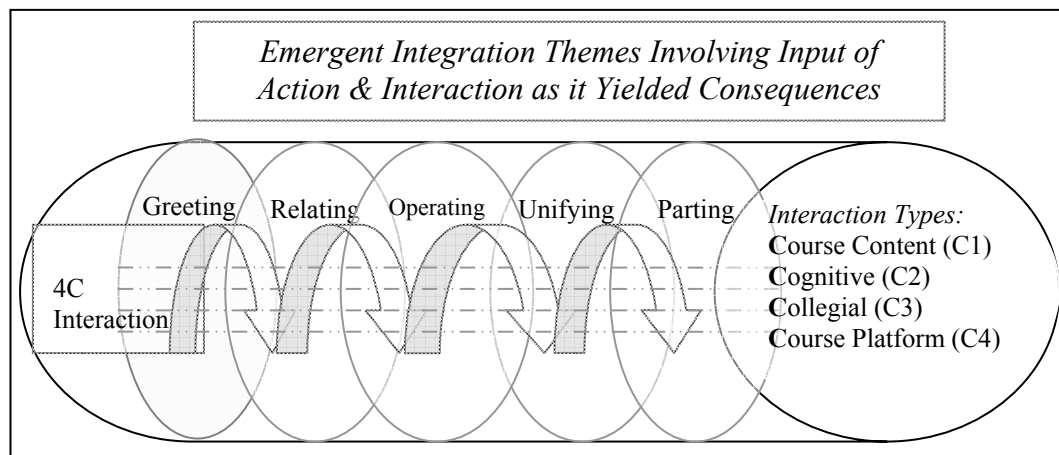


Figure 2. Emergent integrating themes involving input of action & interaction as it yielded consequences

Research Question 2 (RQ2)

RQ2: What influence might instructors' instructional stances have on the group dynamics during online discussions?

Conditional Context: The Integration of Process and Structure Further Refined

In response to Research Question 2, it was concluded that the contributions of the instructors extended beyond the parameters set forth in this second research question. In short, their contributions or influence were found to represent those conditions that nurtured and promoted, as well as laid the groundwork, of the Online GROUP Development (Strauss & Corbin, 1998). Conditions are defined as “sets of events or happenings that create the situations, issues, and problems pertaining to a phenomenon and, to a certain extent, explain why and how persons or groups respond in certain ways” (p. 130).

As noted previously, although it is impossible to completely sever the findings from Research Question 1 and Research Question 2 because a substantive theory is by nature, a “set of well-developed categories (e.g., themes, concepts) that are systematically interrelated through statements of relationship” (Strauss & Corbin, 1998, p. 22). It was at the analytical process of defining the conditional context that the answer to Research Question 2 was found. This conditional context is described in detail below.

Upon identification of the conditional context of the Online GROUP Development model, analysis yielded pertinent results that spoke to three principal conditions that created and supported the foundation. A key to discriminating the

substantive theory was the emergence of major conditional variables, which had a direct impact on the particular group dynamics observed within each course section.

Three sets of variables all spoke to a perspective from which many conditions came together to promote a phenomenon systemically rooted in the *structure*. The Main Conditions Present (MCP), or structural foundation variables, were found to lay the groundwork for the phenomenon of Online GROUP Development, and as such, helped elucidate why the phenomenon materialized as it did. In other words, the conditional variables (input) resulted in the articulated theory proposed within this research—that of Online GROUP Development (output). As such, it theorized that these structural variables must be present to some degree in order to create and promote an environment conducive to the establishment and development of an online learning community as seen in asynchronous computer mediated communication.

Computer Mediated Communication Input Variables (MCP1)

Within the present study, Computer Mediated Communication (CMC) input variables (MCP1) included the asynchronous threaded discussion board feature found within WebCT. The threaded discussion board directly related to the conditional context of the Online GROUP Development setting, as this is where the electronic discussion occurred. In this domain, it was necessary for participants to understand the mechanics and logistics involved in communicating through an electronic medium.

Important to reiterate, the discussion among the participants occurred periodically at varying times and from varying locations, hence the emphasis on the term “asynchronous,” as all discourse was mediated electronically. This was the only public forum used to discuss the course content and this is where the process of group

learning occurred. Specifically, through the threaded discussion board, participants were provided with the conditional context (in this sense, a location or environment) with which they could access all of the written discourse pertaining to the course discussion. In other words, these results answer “Where?” the process of Online GROUP Development occurred.

Instructional Stance Input Variables (MCP2)

Instructional Stance Input Variables (MCP2) proved pivotal, as they were a central and primary force in the establishment of a communal learning environment. As such, they contributed significantly toward the conditional context that helped shape and nurture an environment that was ripe for group learning. These variables were found to include input at the course design stage and the course implementation stage through instructor-designed curriculum and written discourse, respectively.

Instructor-designed curriculum. The structure provided by these instructors, also participants in the study, substantially contributed to the phenomenon presented within as three of the four instructors shared in the construction (instructional design) of the course. As part of their collective efforts in the electronic course environment, they sought a venue in which a “cultural identity” could be established as well as one that promoted higher levels of critical thinking. As such, instructor input significantly contributed to the design of the discussion board. As one instructor noted, the prompts were designed to be “student-centered and asked them [the learner] to construct new or deeper understandings by integrating personal experience with course content presented in the module. These new understandings were then shared with colleagues whose input mediated them.” The prompts were intentionally scaffolded to

strategically encourage discourse among participants that saw an increase over time in higher levels of cognitive complexity. As noted by one of the instructor-participants in response to the design of the prompts,

The pattern is one that I use in my teaching all the time. Activate their own experiences and talk about them. Zoom in on something concrete and engage with the text and videos. Make it open ended... We aimed for a higher level thinking by making the question open-ended.

An additional framework that was presented included the schema-theoretic perspective (Anderson, 1984) that was described as the following:

You and I can read the same text and we can come out with the same general idea – the same information – but our perspective on the information will be very different based on prior experiences, the schemata from which we draw. How you construct meaning extends to my beliefs about how you learn in general...it is a process that occurs within a person but I also think it is a process that occurs in a number of different contexts.

The instructional stances that were incorporated into the design of the prompts resulted in increased levels of communication with regard to depth or quality instead of that which necessarily spoke to the volume or the quantity of posts. The intentional design of the prompts to encourage discussion was elaborated upon by one instructor-participant who emphasized, “We [the co-designers] decided that we did not want the discussion to be instructor-dependent. The only time that we would come in is when something was incorrect, if there was something we wanted to underscore, or if we just wanted to let them know that we were around.” As one instructor noted, “Learners need to talk about their learning. This is supported by Vygotsky...So we wanted them to talk. The introduction was a great way for them to get to know one another better and then they returned to it later for reflection.”

Weaving these instructor input variables into the theoretical framework of this discussion is important as interview data revealed that all four instructors were found to strongly adhere to the principles set forth from a constructivist framework (Vygotsky, 1978) which seeks to encourage the engagement of learners with one another. One instructor noted, “As an instructor I believe that we construct knowledge together...So I do constructivism and we learn together: What you bring, what I bring, we are going to make into something.”

Written discourse. Contributions of the instructors to the discussion board (their posts) were separated from the other posts (the students’ posts) and were coded separately for emergent themes. Although the volume of actual instructor discourse was minimal throughout the respective courses (a total of 65 posts, not including the prompts), this is consistent with the current literature, which largely promotes the “instructor as facilitator” modality in this learning environment (Bonk et al., 2004). It was through their discourse that the instructors established a plethora of roles that they enacted throughout the acts of “online talk” and “online listening.” Analysis revealed patterns within their written discourse as it was interjected into the course discussion. As noted, there were four instructors across the five courses. All four instructors viewed themselves as “facilitators” in this setting, even if this was not an original conception at the onset of the course. For example,

I think I’ve gotten better at being a facilitator of adults. In the beginning, as soon as they’d raise a question, I’d want to jump in there...I recall one particular week that was exceptionally busy and I couldn’t get on [the discussion board] every single day but I think that was supposed to happen because when I eventually went in, someone had already answered somebody else’s question.

A participant reinforced this within a summative evaluation by stating, “I think they did a great job facilitating – the role I think is appropriate for this type of course—and a reason that I would be interested in taking others.” The instructors’ facilitation skills were denoted primarily through patterns related to their online talk (Table 31).

Table 31

Summarization of Instructors’ Online Talk Used to Facilitate Discussion in Asynchronous CMC

Talk	Definition
Salutation:	Greets participants; welcoming; introduction of self.
Summarization:	Summary of discussion and course material. Incorporation/integration of professional experience.
Forecasting:	Preview of upcoming material.
Encouragement:	Positive reinforcement to encourage specific behavior(s).
Enthusiasm:	Words used to express excitement and warmth (tone).
Community:	Emphasis on community of learners; reference to “cyber-community” and “your online community” and “we.”
Validation:	Acknowledgement and affirmation to convey that “I hear what you are saying.”
Referral:	Links to resources inside/outside, including technical assistance; of course material to current research findings.
Logistical:	Course management issues, including logistics; course platform issues/technology; reminders, course expectations.

Additional findings related to the ways in which the online instructors evidenced the other component of communication in their written discourse – that of online listening. “I really let them take charge of their own learning and was there when they requested it,” noted one instructor. Table 32 describes the listening behaviors of the four instructors. Because the instructors acted more as participant observers (Merriam, 1998), in which they engaged in listening much more so than “talking,” these skills directly supported the notion of facilitation as opposed to professing as communication occurred on the threaded discussion board.

Table 32

Summarization of Instructors’ Online Listening as Seen in Asynchronous CMC

Listening	Definition/Examples
Listening w/ branch:	A post that was in direct response to another, and which demonstrated responsiveness through relating to and engaging participants. Responses offered assistance, answered questions, provided insight, and imparted encouragement.
Listening w/o branch:	Evidenced listening behavior but was not in direct response to a particular person.

Note.: A “branch” is noted as a direct reply to a prior posting.

Participant Input Variables (MCP3)

Results further revealed that participant input variables (MCP3) played a critical role in the creation of the conditional context, which promoted the phenomenon of Online GROUP Development. It was through axial coding initiatives that patterns emerged that were indicative of a collegial environment that fostered the phenomenon

to occur. Throughout their discourse, participants demonstrated a desire to learn, willingness to learn from others, respect for the means of communication, an acceptance of responsibility to construct knowledge, reciprocation of modeling behaviors, and acts of professionalism which demonstrated courtesy and respect to others. These variables are discussed in more detail below as they were found to have considerable relevance to the overall tone and collaborative atmosphere that existed. Furthermore, these input variables were found to consistently exist throughout each stage of GROUP, regardless of whether it occurred in the beginning of the group's development (Greeting) or the end (Parting).

Participant input was found to foster affective and social components related to group functioning. These principles were consistently represented within and across the five courses analyzed in this research. These particular findings spoke to guiding principles, which shaped and defined the culture of the group over time as well as the acculturation or norming of acceptable behavior. They are incorporated here as a viable component relevant to Research Question 2 as it was concluded that the responses of the learners bore a direct relation to the conditions that set the tone of the overall environment. As such, it is posited that the Participant Input Variables (MCP3) were promoted within the instructional stances of the instructors, as seen within the course design and within their written discourse on the threaded discussion board. They are described below.

Desire to learn. A sincere desire to learn was characteristic of the majority of the postings. This was particularly noted when participants acknowledged their desire to learn more about the topic at hand and through self-descriptions in which several

described themselves as “lifelong learners.” The desire to learn was often accompanied by expressions of eagerness and excitement to get started with the course material, as seen in this excerpt taken from the Greeting Stage, “I might be an ‘old timer’ but I’m still learning and excited about engaging in conversations with other professionals about implementing good strategies.” The desire to learn was a characteristic common across all GROUP stages, irrespective of the actual GROUP stage as postings consistently demonstrated this sincere desire to learn and integrate the course material into one’s professional repertoire.

Willingness to learn from others. The learning communities that formed in each of the five course sections suggest that their roots were largely established through the participants’ expressions of their willingness to learn from one another, their online colleagues. There was a definitive expression and appreciation of the fact that participants were among fellow professionals and in many instances, seasoned professionals. One example, taken from the Greeting Stage, is the following branch (reply) of one participant to another, “I am so glad that you are taking this course. As a new teacher, I love to hear the knowledge of teachers who have experienced and have tried a variety of teaching strategies and fads.”

Participants evidenced a genuine desire to participate in the discourse so that they could contribute from their experiential viewpoint (that of subject matter expert) and learn more. Participant posts included a level of warmth that was witnessed even during the first 2 weeks of postings. For example, “I’m looking forward to working in cyberspace with all of you!” or “I look forward to learning with you and drawing on your collective strength.”

There was an overall sense that the participants knew they were responsible to work with each other, as the instructors took on roles of active listeners. It was a rare occasion within this public forum that the instructor was specifically called upon for help. Participants needed to pursue their colleagues and obtain others' experiential standpoint, which included the viewpoints, opinions, and ideas expressed by others. Posts indicated a sense of trust in colleagues in that they sought and pursued each other for information, advice, guidance, and mentoring. The following, taken from the Operating Stage, illustrates this phenomenon:

I'm a little intimidated about getting started. What are other students doing while the teacher works with the small group? Are all groups worked with by the teacher every day, or is this staggered over the week? Does the teacher plan an alternate activity for the rest of the class or are they reading with a partner, silently, etc..?

It was further evident that participants would need to rely on each other for information in order to assist them with the obtainment of their professional objectives.

Taken from the Operating Stage, an example is noted below:

My question: At my class this summer I learned that research shows that students who read along with books on tape (appropriately leveled) make great strides in reading. This was not done as a class but on an individual level. I have really wanted to try this out this year but haven't found the time – Long story short – has anyone tried this idea and how has it worked? Have a great week! [First name].

Participants placed value in the means of communication. Results suggested that participants valued the means of communication in this forum. This is not to say that participants may have felt this was a better venue as compared to the on-ground counterpart, as that was not directly assessed, but it did speak to the fact that participants acknowledged their written discourse as the primary venue for expression

of their “voice” within the medium of asynchronous CMC. Analysis evidenced an overall desire to communicate with peers that was observable through their reading of others’ posts, their identification that they were listening to others within their responses, an acknowledgement of others’ responses (perhaps even individualization), and a general responsiveness to other posts, whether they greeted a new member, responded to a question that was posed, or posed their own questions. As they engaged in online talk and online listening, a conversational tone was observed.

One such example includes a message from the Operating Stage of development in which a participant demonstrated the value of listening in this setting, “I have read all of your comments with great interest. ...I think I’m getting a feel for the management from our discussions and the readings...” Another example stems from a summative evaluation, “I think with a course like this you are partly responsible for what you get out of it. The more you discussed with others, the more you can learn from others.”

Accepts responsibility to construct knowledge. Participants chose to become part of an online learning experience. As such, a definitive sense of responsibility to complete course requirements and to participate (even though not officially required) ensued. A sense emerged that they were self-directed learners who trusted themselves and knew when to ask for help. Participants accepted responsibility to build their own knowledge, largely without direct, live, didactic interactions from the instructor. Incorporated into this was a need to complete other required assignments, as well as the sharing of what was learned through their interaction, including their interface with

course materials such as the video streaming and links to external references. An example from the Unifying Stage is reply:

Hi [name of student], I wanted to reply to your comment ‘about walking!’ I really like that comparison! And if all right with you, I may just give that a try! This is so true. Also, I can’t believe you have some kids reading on a level 18 on the DRA! I teach title reading to grades 1 and 2. I have some of my kids on 18 in 2nd grade and I think that they are doing pretty good. You really put that in perspective for me. Again, thanks for your comments, [first and last name].

Reciprocates modeling behaviors. Results revealed a general trend for participants to model those who were among the first to post a response to one of the instructor-designed prompts. This was demonstrated in a variety of ways throughout the content of the actual post. Content tended to model or mirror others’ posts, whether it be from an organizational perspective or through similar content. For example, if one participant bulleted ideas or enumerated ideas within their post, it was typical for others to follow suit. In comparison to the bulleted post, a second feature spoke to the stylistic nature of the posts that predominated as lengthy and well-articulated thoughts. The majority of posts were written as complete sentences in which members posted their thoughts and opinions. Many of the sentences began with messages stated in the “I” as in “I feel” or “I think” or “I agree” and again, the others followed suit. Additionally, proper English and grammar were also pronounced throughout the analysis. Although it was not overtly written, it was implied that short posts were not going to be the group norm. Additional modeling behavior within the posts utilized CAPS for emphasis and an occasional emoticon used to help express feeling.

Acts professionally, demonstrating courtesy and respect to others. Individuals within this forum consistently displayed a professional demeanor within their written

discourse. Analysis revealed several distinguishing points. One feature rests within the posts themselves where postings were observed to be thoughtful and considerate. Examples include posts that were expressed as apologies for reasons that included posting late due to late enrollment or family issues. For example, “Once again, I’m a little late with my contribution, I’m sorry.” Or the following, “Sorry, folks...I somehow put my ‘Perceptions of Guided Reading’ entry in the wrong section.” Another feature is situated within the timing of the prompts in which most replies and responses to others’ questions, comments, or concerns, were timely.

In summary of the answer to RQ2, results indicated that the instructors had a considerable, if not always overtly visible impact on group dynamics through their design and participation. Although a thorough response to this question cannot be entirely severed from the response of Research Question 1, the analysis specific to the instructional stances significantly contributed to the conditional context of the substantive theory. From this vantage, the instructional stances encapsulated three primary sets of conditions or variables: computer mediated communication input (MCP1), instructional stance input (MCP2), and participant input (MCP3). These foundational properties, when taken together as a system of input variables, directly interacted with the *structure* in such a manner as to further condition or “ripen” the web-based learning environment so that it can foster such a phenomenon as Online GROUP Development.

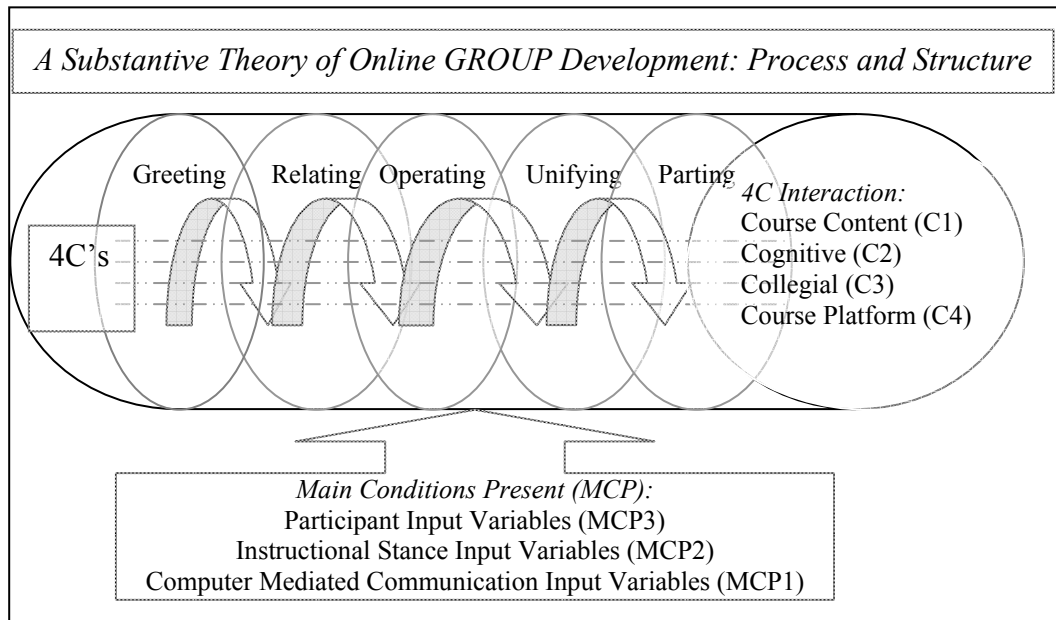


Figure 3. A substantive theory of online GROUP development: Process and structure

As detailed, this chapter has thus far answered Research Questions 1 and 2. The next section of this chapter provides an answer to Research Question 3.

Research Question 3 (RQ3)

RQ3: Do the interactive patterns of asynchronous threaded discussion boards as seen in five graduate level online professional development courses apply to the five-stage model of online group development proposed by Waltonen-Moore et al. (2006)?

Interactive Patterns

Research Question 3 focused on whether the results of the current research were applicable to the former research conducted by Waltonen-Moore et al. (2006). The answer rests within a comparison of the two research studies and their respective results. In the former research, a “model” of Online Group Development (OGD) was

described (Waltonen-Moore et al.). In the current research, a “substantive theory” of Online GROUP Development was articulated. With this difference in mind, the researcher concluded that the interactive patterns of the current research analysis did not apply to the former research outlined by Waltonen-Moore et al. This stance is elaborated upon below.

To explain and support this position, the current results are considerably different based on one primary and fundamental distinction—the research methodology used in the current research essentially yielded patterns that placed the studies on non-equivalent levels. Whereas the prior research was able to derive concepts from the data and organize those concepts into categories as a *process* per se using a case study methodology and analysis akin to open coding, it did not fully develop categories in terms of their properties and dimensions, as was also included throughout the microanalytic coding procedures inherent to grounded theory methodology. As Strauss and Corbin (1998) emphasize,

Analyzing data for process is not a separate aspect of analysis. Coding for analysis occurs simultaneously with coding for properties and dimensions and relationships among concepts. It is part of axial coding and the building of categories. Instead of looking for properties, one is purposefully looking at action/interaction and noting movement, sequence, and change as well as how it evolves (changes or remains the same) in response to change in context or conditions. (p. 167)

The current research study was able to achieve a level of theoretical saturation of the data because it went beyond the realm of conceptual ordering (“modeling”). It exhausted its efforts within the open coding, axial coding, and selective coding realms and resulted in an integrated and interrelated “theoretical” framework (Strauss & Corbin, 1998). Not only were categories included with their respective properties, but

dimensions were used to differentiate each of the five GROUP stages. Axial coding related those categories to their subcategories for a more thorough explanation. The explanatory framework that emerged incorporated an analysis that addressed both the *process* (sequences of evolving action and interaction) and the *structure* (conditions and consequences of the interaction or lack thereof). The selective coding integrated and refined the findings of the major categorical stances into the substantive theory as it is laid out within Chapter IV.

Moreover, the current research not only reexamined the data set from their prior research (Course A), but added four additional primary sets of data (Courses B, C, D, and E). This represented an increase in participants by nearly 400%, which subsequently increased the data sets or volume of posts, thus allowing for much greater reliability and validity. The new amount of data, coupled with more comprehensive analytical procedures, resulted in a complex understanding of the interactive patterns. This included a description of each stage of development: Greeting, Relating, Operating, Unifying, and Parting with dense descriptions and examples of the group process unique to each stage.

Quantification of the analysis also led to the inclusion of multiple data tables, which demonstrated the changing levels of interaction within each stage. This was done bi-directionally. It was demonstrated in one direction by tracking the evolution of Online GROUP Development across each separate prompt specific to a given module (Appendix I). It was demonstrated in a second direction through another layer of quantification that analyzed the interactive patterns within each primary data set. In this instance, analysis tracked the progress of the learners *within* each given course as

they progressed throughout across each stage (GROUP) and *across* module (Intro, 1A, 1B, 2A, 2B, 3, 4, and 5A/B). These additional layers of analysis were not conducted in the former research, thus allowing the researcher to conclude that the interactive patterns of the current research are not comparative to the former.

Due to the more comprehensive nature of the data collection and methodology that ensued, the current analysis revealed four primary factors that were relevant across time. These conditions were labeled “4C Interaction” as they described four distinct categories of interaction that occurred within varying degrees throughout the Online GROUP Development experience. Analysis revealed four realms of interaction: Course Content (C1), Cognitive (C2), Collegial (C3), and Course Platform (C4). This analysis aligned the actions and interactions of the group members with conditions C1, C2, C3, and C4, which included how these conditions changed from one stage to the next, thus impacting the interactive dynamics of Online GROUP Development. For each categorical stage of GROUP, subcategorical descriptors were also identified, thus differentiating the conditions across time, adding definition and density to the intricate dynamics. This level of analysis was also not included in the former research, again allowing the researcher to conclude that the interactive patterns of the current study do not apply to the former.

Furthermore, to add to the intricacy of understanding the interactive patterns that evolved in Online GROUP Development, analysis of those elements contributing to the *structure* of GROUP revealed additional layers of complexity. Analysis resulted in three sets of input variables that were found to lay the foundation for GROUP. These conditions were labeled as the “Main Conditions Present” and included:

Computer Mediated Communication Input Variables (MCP1), Instructor Input Variables (MCP2), and Participant Input Variables (MCP3). The Main Conditions Present was a system of variables that had tremendous influence on not only setting the stage for the GROUP phenomenon to occur, but whose dynamics were observed throughout the duration of the course. These input variables bore significantly on the interactive patterns of each group. It is hypothesized that without all three of these input variables interacting within the online learning community, that perhaps Online GROUP Development (output) would not have occurred. The analysis methods that yielded the Main Conditions Present were not included in the former research, again enabling the researcher to conclude that due to the fundamental differences in methodology, that interactive patterns cannot be imposed or applied to the former research.

Additionally, the researcher concluded that when the two research studies were compared at a categorical level only (five stages of OGD as compared to five stages of GROUP), there were even more differences in the interactive patterns. In comparison of each of the studies' five stages with one another (Table 33), several factors are worth highlighting. First, it was evident that although the Greeting Stage and Introduction Stages were the most similar, the Greeting Stage enveloped the Identification Stage of the former model (Waltonen-Moore, et al., 2006). As illustrated in Table 33, online listening and online talking began in this first stage, whereas in the Introduction Stage of the prior research, talking to each other was delayed and did not occur until the third stage. The current research also found the process of identification with one another as colleagues in an online setting to occur in the first stage as well.

Table 33

Group Development Stages – Major Comparisons Summarized

GROUP Stages	OGD Stages
I. Greeting Online listening/online talk begins Identification with each other	I. Introduction Online listening begins Participants not talking to each other
II. Relating Identification with course content Contextualize self in relation to content Online talk & online listening	II. Identification Identification with each other Not course content centered Relate through online listening
III. Operating Digesting/reaction to new content Idea generating Interactive dialogue/Collaborative	III. Interaction Identification with course content “Sparking” – online talk begins Contextualize self in relation to content
IV. Unifying Putting new content into practice Goal setting/implementation Interactive dialogue/Collaborative	IV. Involvement Working with new content Task-centered Interactive dialogue/Collaborative
V. Parting Final Assignment/Farewell Communication lessens	V. Inquiry Putting new content into practice Interactive dialogue

Note. Table developed in conjunction with Waltonen-Moore et al. (2006).

Second, it was found that not only did the five course sections in the present research assume the Identification Stage, but they completed their stages sooner (Table 34). For example, as noted previously, in the OGD model (Waltonen-Moore et al., 2006) it was not until the Interaction Stage (III) that interaction between participants occurred. This stepped-up process of progressing through the stages was evident into the final stages as presented within Online GROUP Development. In the OGD model, it was during the fifth stage, Inquiry, where participants engaged in the most advanced levels of communication whereas this occurred in stage IV of the GROUP results.

Another major distinction within the interactive patterns of each study is that the current research yielded a closing stage – Parting. This stage was characterized as one in which emphasis of dialogue was placed on closing the course, both through culmination of the final assignment and through the group process of parting from one another. In the prior research, the stages ended at the Inquiry stage and did not reference any sense of group closure.

To summarize this section of the results as specific to Research Question 3, the researcher concluded that the interactive patterns of the asynchronous threaded discussion boards from the present research study did not apply to the former research (Waltonen-Moore, et al., 2006) that presented the OGD model of group development. This analysis was grounded primarily through the distinction of research methods utilized. The present research significantly expanded the primary data sets and theoretically saturated the data, thus increasing the potential validity and reliability of the results identified through open, axial, and selective coding initiatives. This analysis

substantially differed than the former research and as a result, an articulated and well-integrated theory of Online GROUP Development was produced.

This theory resulted in interaction patterns that went far beyond the level of conceptual ordering of the prior research (Waltonen-Moore et al., 2006) and included both the *process* and *structure* inherent to the substantive theory. This is dramatically different than the former research. While the new analysis revealed five categorical stages – Greeting, Relating, Operating, Unifying, and Parting – this research intensified its analysis through the incorporation of quantifiable tables which demonstrated the changing levels of interaction at each stage. Moreover, additional analysis uncovered specific interactive patterns labeled 4C Interaction which referenced four primary areas of interaction (C1, C2, C3, and C4) that the learners experienced as they progressed through the stages of GROUP. Added to this were three systems of input variables that fostered the phenomenon of Online GROUP Development. These Main Conditions Present (MCP1, MCP2, and MCP3) were related to the analysis as a system of variables that substantially impacted the output, structuring and nurturing those conditions necessary to foster the collective ability of the group to emerge as a learning community. The researcher concluded that the breadth of attention provided to the interactive patterns of this analysis deemed that these results could not be compared to the former study.

It was further concluded that differences stemming from the two research studies further distinguished the two from parallel comparison. Whereas the results of both analyses present five stages of group development in the e-learning environment, the stages in the current research were different from those outlined previously.

Despite the aesthetic appearance of being similar as presented through five stages, pronounced changes within the stages were described. One of the most distinct differences included the notion of a concluding stage (Parting). This again led the researcher to conclude that the differences between the two studies differed dramatically enough to warrant that the interactive patterns obtained in the current study could not be applied to the interactive patterns of the prior research.

Overall Summary of Results

In summary, Chapter IV presented the comprehensive results related to a grounded theory research study which utilized the constant comparative method of analysis to code several thousand speech segments. The microscopic analysis involved with the open, axial, and selective coding initiatives enabled a substantive theory related to the nature of how learning communities form, develop, change, and accomplish tasks over time (Carabajal et al., 2004). Three research questions provided the framework for the study, and their respective answers were elaborated upon at length.

In response to Research Question 1, which sought the identification of the *process* and the *structure* necessary in a description of how group development occurs in the online educational setting, an elaborate substantive theory resulted. Connecting the results, Online GROUP Development was determined to serve as the overarching “core category” which linked the integrated components of the theory together, the *process* and the *structure* (Strauss & Corbin, 1998). In this sense, after the induction of the data analysis was completed, Online Group Development served as the core category, a term induced to summarize the inductive results (Strauss & Corbin). The

acronym GROUP was used to summarize the *process*, or the five stages of group development that were found in this setting: Greeting, Relating, Operating, Unifying, and Parting. Each stage was further defined through revelation of the *structure*, or those foundational properties that separated each category from the next. Four primary properties revealed themselves as existent over the duration of the course and were found to interconnect the stages to one another. In this manner, each of the four properties were referred to as 4C Interaction and were consistently noted across the group's functioning (the duration of the course), yet in varying degrees. These four properties included the following: Course Content Interaction (C1), Cognitive Interaction (C2), Collegial Interaction (C3), and (d) Course Platform Interaction (C4). Each of the 4C Interaction components were further defined with regard to subcategorical descriptors and their corresponding dimensions.

In response to Research Question 2, it was also found the instructional stances of the instructors that set the tone of the environment in which a group of strangers could overcome their separation of their geographical distance, to become a functional group capable of learning. The revelation of three major conditional variables significantly added to the *structure* as they were inextricably linked to enabling the *process* of Online GROUP Development to unfold. These properties were labeled as the Main Conditional Properties (MCP) and included variables that pertained to the following: Computer Mediated Communication Input (MCP1), Instructional Stance Input (MCP2), and Participant Input (MCP3). As previously stated, it was impossible to cleanly sever the results from RQ1 from RQ2, as the results from the analysis obtained in relation to RQ2, helped differentiate the process and structure sought in

RQ1. It was concluded that the MCP were the primary structural components or the conditional context that contributed to the configuration necessary to enable a process such as Online GROUP Development to unfold. These conditional variables were largely due to the inherent structure determined by the faculty members who designed this course.

When the five stages of Online GROUP Development were linked along with their respective properties (the 4C Interaction) and the structural foundation components (MCP), an intricate framework emerged, lending itself to the establishment of a substantive theory of Online GROUP Development. This theory described how individuals, separated by space and time, forged into the electronic classrooms to become a distinct community of learners, capable of obtaining higher levels of interaction and cognitive complexity over time.

With regard to Research Question 3, in light of the previous Waltonen-Moore et al., (2006) research, this present study was found to substantially increase the population and data sampled, allowing for a much more exhaustive analysis. Although the two research studies both highlight two main foci related to the design of threaded discussion boards, (interaction and cognitive complexity), there is a large disparity between the conceptual results achieved in the prior research and the integrated and interrelated framework of variables that resulted from the current study, thus enabling the researcher to conclude that the current research offers a much more dense and expansive analysis of the interactive patterns observed in Online GROUP Development. A summary of the implications of these results is discussed in Chapter V.

CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Introduction

This chapter is divided into three major sections. The first provides a summary of the study; the second, summarizes the major conclusions of the research; and the third provides implications related to the research findings as well as implications for future research.

Statement of the Problem

This research investigated an area known to be a barren field of research awaiting discovery, that of how groups of learners develop in online classrooms when their primary mode of communication is asynchronous computer mediated communication (Carabajal et al., 2003). The online setting offers a convenient time and place for learners who opt to further their professional development through training and education from remote sites in which they may never come into face-to-face contact with their peers and instructor(s). A predominant learning theory in the design and delivery of this online instruction is that of the socioconstructivist learning theory (Vygotsky, 1978) which promotes the social construction of knowledge through the means of a learning community.

Although a few models of online group development exist, a specific model derived by Waltonen-Moore et al. (2006) was used as access to the baseline data for this research. The model published by Waltonen-Moore et al. primarily achieved a level of analysis which corresponds significantly to that of conceptual ordering, or that which is akin to Strauss and Corbin's (1998) level of analysis related to open coding. Because the data in this original model was available to the researcher, as was additional data coming from similar, yet still distinguishable courses, a more comprehensive method of research analysis was employed to more thoroughly investigate the findings. In this manner, the researcher was able to reexamine the patterns of communication available from the original Waltonen-Moore et al. (2006) data set but also enhance these findings through the microanalysis of four additional data sets. The overarching nature of this research sought to explore the nature of the e-learning environment and how participants come together in such a manner to work collaboratively when they access the course at separate times and from separate locations.

Statement of the Procedures

The methodology used to study the asynchronous threaded discussion boards was that of grounded theory (Strauss & Corbin, 1998). Within this methodology, the constant comparative method of analysis was used to microanalyze the data throughout open, axial, and selective coding prescriptives (Strauss & Corbin, 1998). Throughout these research initiatives, theoretical saturation of the data was pursued through the coding and analysis specific to five online graduate-level professional development courses. Interview data was also gathered from the four instructors and summative

evaluations were used from the participants. Member checking included three of the instructors (those who were active in the course design). These additional data sources were used as methods to promote the validity and reliability of the study through triangulation (Merriam, 1995, 1998).

Research Questions

In order to investigate how online learning participants communicate with one another through their asynchronous written discussion, this research was guided by three primary questions that included the following:

1. Using grounded theory methodology, what structure promotes and what process describes, the development of a community of learners as seen in asynchronous threaded discussion boards?
2. What influence might instructors' instructional stances have on the group dynamics during online discussions?
3. Do the interactive patterns of asynchronous threaded discussion boards as seen in five graduate level online professional development courses apply to the five-stage model of online group development proposed by Waltonen-Moore et al. (2006)?

Major Findings

This research resulted in several major findings in relation to the aforementioned research questions. These predominant findings are described below.

The Development of a Community of Learners

A primary conclusion of this research was the development of a substantive theory of Online GROUP Development. Utilization of the grounded theory methodology enabled an integrated framework of the phenomenon to emerge in which

both a *process* and a *structure* were found to contribute to its development. The ability of individual participants within their e-learning environments to evidence an evolution with regard to the patterns of development as observed within their asynchronous written discourse with one another provides a simplistic description of the phenomenon that revealed itself. As such, individual participants progressed from earlier stages dominated by unidirectional talk in response to a discussion board post, and developed into discourse that was ripe with trust, respect, collaboration, and higher levels of critical thinking, as was witnessed in the latter states of their development with one another. Microanalysis in which the techniques of open, axial, and selective coding were utilized as part of the coding prescriptives set forth within the grounded theory methodology (Strauss & Corbin, 1998), enabled the researcher to define the process of online group development according to the following description:

Online group development includes individuals who seek educational and/or professional development opportunities as a way to increase their own knowledge, and who, by means of a common method of computer-mediated communication (in this sense, asynchronous written discourse) evolve as a community of learners who develop socially, affectively, and cognitively with one another in such a manner as to promote group learning.

The researcher further labeled the core categorical feature of the observed phenomenon, as Online GROUP Development, which is used to reference the explicit and intentional incorporation of both the *process* and *structure* within this substantive theory. Due to the significant contribution that each paradigmatic component (*process* and *structure*) had in the development of the group, each will be treated as a separate and major finding within this chapter.

Online GROUP Development: An Exploration of Process

A second major finding directly relates to the process, or the progressive nature of each of the five communities of learners examined in this research undertaking to undergo a transformation of patterns within their written discourse that enabled the *process* of Online GROUP Development to unfold. The five-stage process that emerged was identified after open and axial coding initiatives revealed consistent analysis that suggested five major categorical stages that the patterns of talk underwent throughout the analysis. The five major categorical findings were labeled Greeting, Relate, Operate, Unifying, and Parting (GROUP) and each stage was detailed with regard to characteristics that help differentiate the evolution of talk among five separate sections of professional development students. These stages are summarized in Table 34.

Table 34

Description of the Acronym GROUP

Each letter conceptualizes one major process stage of Online GROUP Development

G	Greeting (introduction of self on a professional, personal level)
R	Relating (introduction of personal experience with course subject)
O	Operating (working together to learn/group problem-solving)
U	Unifying (integration/application to real life)
P	Parting (culmination of the course/closure)

Note. A full description of the categories/stages is described within Chapter IV.

The five-stage model reflects the ability of online learning participants to overcome the potential barriers associated with temporal and geographical separation, and evolve in their patterns of written discourse with one another in such a manner as to clearly evidence progress from stages where postings were more unidirectional (one-way) and non-content related, into advanced stages in which course content messages were more reflective of a conversation, as well as talk that was characterized as having higher levels of critical thinking.

When each speech segment was analyzed according to the chronological order from which the discussion post originated within the course context, it became apparent that each segment was capable of primarily representing one of five specific stages of engagement within the course. Keys to identifying in which stage a speech segment is located were determined by the primary properties which helped elucidate its appropriate placement within the five major categorical suppositions. Advanced levels of microanalysis as supported by both open and axial coding prescriptions revealed four predominant categories related at the “property” level that were found to span across the duration of the each categorical construct. These properties consisted in patterns that spoke primarily to different types (and degrees) of interaction found within and across each stage. These four dominant properties, labeled 4C Interaction, defined interaction according to the following: Course Content Interaction (C1), Cognitive Interaction (C2), Collegial Interaction (C3), and Course Platform Interaction (C4). All of these properties ebbed and flowed in their intensity and salience as they related to themes that emerged from the written communication throughout the duration of the course.

Online GROUP Development: An Exploration of Structure

In addition to the *process* which elaborated on the actions/interactions and their consequences, analysis revealed important components related to the *structure*, or those conditions which enabled the process to occur. This third major finding denotes a specific distinction within the analysis that identified those structural conditions that were found to serve as the predominant factors which primarily established the foundation for the process of Online GROUP Development. As part of this third major finding, and in response to research question 2, this section also incorporated the influence of the instructional stance(s) on the group dynamics.

The ability of “virtual strangers” to overcome temporal and geographical separation and evolve in their patterns of written discourse with one another at levels which were reflective of the participants’ overall ability to work together, to seek each other out for guidance, as well as to progress into higher cognitive ground where critical thinking was noted, was grounded in the foundation that existed prior to the commencement of the course(s).

Precisely, three sets of input variables were found to influence and support the phenomenon of Online GROUP Development. These three structural foundations, referred to as the Main Conditions Present (MCP), related to Computer Mediated Communication Input Variables (MCP1), Instructional Stance Input Variables (MCP2), and Participant Input Variables (MCP3). These variables formed the structural foundation of the course and continued to develop and interact in such a way as to foster the promotion of the *process* that led to the development of a community of learners. In other words, it was not happenstance that each of these five groups

emerged as a collaborative unit engaged in activities respective of a learning community. To the contrary, it was a system of variables, whose actions and interactions led to the consequence of the emergence of a learning community. These findings specifically reference the advanced levels of integrative analysis that are inherent within the grounded theory methodology.

First, the WebCT course management system that provided the medium for the asynchronous threaded discussion board and overall course environment provided the technological structure within which participants could engage in the course conversation. Second, the instructor input variables were those that reflected the influence of the co-authors (three of the four instructors who subsequently taught the five sections analyzed as part of this research analysis) and the instructional stance from which they operated as it influenced the instructional design of the course. This included the predetermination of weekly discussion board topics, with some weeks having two topics or two separate threads. These instructor-designed prompts were provided as a way to promote the socioconstructivist principles that hold that learning involves the mutual construction of knowledge among different levels of peers, including the instructor(s) (Bonk & Cunningham, 1998; Vygotsky, 1978).

Furthermore, the instructional stance(s) of the instructors provided additional structure to the course, as their roles within each course and the patterns of their “talk,” can be linked to enabling the process of Online GROUP Development to evolve over time.

Finally, it was the way in which the majority of participants “spoke” and communicated with one another within their written discourse that served as a primary contributor to the ability of the learners to come together and emerge as a collaborative

group of individuals who respected the medium of talk and recognized its value as a way to communicate with peers, even though they were not in the physical presence of their peers. In many ways, there were affective and social components to these patterns as a sense of value was placed on the method that enabled it to produce the relationship with the course content and respective peers.

Online GROUP Development: Comparison to Prior Work

A fourth major conclusion insists that although the original Waltonen-Moore et al. (2006) model offered an initial glimpse into the *process* of group development in the online setting; its analysis did not provide the detail and theoretical saturation of data that the current research provides, thus yielding the interactive patterns of the current research as inherently different than the former (Waltonen-Moore et al.). The results of the current research analysis suggest a substantive theory of Online GROUP Development rather than the conceptual ordering formerly proposed. Although the results of each research endeavor provided a five-stage model in which participants progressed in their stages of development with each other, the stages within each differed. The current research is perceived advantageous by the researcher because it not only takes the original research results into consideration through access to the original data, but the newer analysis has built upon the original work and enhanced its findings appreciably. In this manner, the initial data was substantially increased in that whereas the original represented analysis of one course, the latter referenced a total of five courses, allowing for theoretical saturation of the data to occur (Strauss & Corbin, 1998). Moreover, although the constant comparative method of analysis was utilized in both research studies, the former research ceased at a level of conceptual ordering

(Strauss & Corbin, 1998) which primarily referenced only the *process* of online group development. As a way to enhance these findings, the same method of analysis was utilized, yet significantly extended through the employment of the analytic tools specific to the grounded theory methodology (Strauss & Corbin, 1998). Because of the extended analysis the researcher concluded that the interactive patterns of the current research are different than the five-stage model previously proposed (Waltonen-Moore, et al., 2006). The results are inherently distinctive based on the methodology employed and the theoretical saturation of the data.

Overall, this fourth conclusion of the analysis is undeniably more exhaustive with regard to the volume of data analyzed, as well as to the extended use of the primary method of analysis, both of which led to the development of a substantive theory of a phenomenon referred to as Online GROUP Development. As such, although there are a few similarities between the current research and the original, the methodology used to explore the latter data resulted in a more dense analysis of the phenomenon, thus taking the notion of “interactive patterns” (as established in research question #3) to a new level of analysis, which elaborated upon both the *process* involved in the patterns of written discourse (how), yet also helped substantiate the *structure* or foundation that was set in place that enabled the process to unfold (why).

In summary, analysis resulted in four primary conclusions as they related to three research questions examined. Along with these conclusions, important consideration was given to how these finding relate to both implications for practice and future research. These topics are explored in the following sections.

Implications for Practice

The analysis of data reported within this study resulted in numerous findings that each express pertinent implications to the design and delivery of online courses in which asynchronous threaded discussion boards are used as a primary way to engage participants in learning. In an online course environment where there may be no face-to-face (verbal) interaction between and among instructors and/or participants, the ability of the “group” to develop a working relationship is in essence, the ultimate beginning of their learning (Palloff & Pratt, 2001). Hence, important implications for practice are defined as they speak to a group of otherwise “silent” participants who progressively emerged into a group that was “spoken for” with regard to their ability to collaborate with one another through written discussion.

Pedagogical/Andragogical Implications Related to Online Learning

Of primary importance are those implications that directly relate to the effective design and delivery of online learning environments. The socioconstructivist learning theory is a major learning theory that actively promotes the need to employ online participants within the active realm of the social construction of new knowledge (Merriam & Caffarella, 1999; Palloff & Pratt, 1999, 2001; Porter, 2004). As such, online course designers and instructors who pay keen attention to the pedagogical/andragogical assumptions related to learning, know and understand the critical role that discussion plays in within the adult learning environment (Brookfield, 1990; Huang, 2002; Knowles, 1990, 1995; Knowles, Holton, & Swanson, 1998; Knowlton, 2001; Knowlton, Knowlton, & Davis, 2000). As a result of analysis, awareness of Online GROUP Development and its stages yielded implications that directly related to course

design, facilitation strategies, and the role of the participants in the obtainment of a group environment that was capable of fostering generative levels of knowledge obtainment. These primary implications are discussed below.

Implication #1: Effective Course Design May Impact Persistence of Students

One primary implication of the results of this study relates to research whose focus is on the retention of learners. From a retention theory perspective, the more connected the learner feels to the institution, the greater the likelihood of retaining the learner, thus potentially leading to a desired outcome of greater persistence (Tinto, 1998). Therefore, if group culture can be promoted in the online setting, the establishment and promotion of the group's ability to develop as a collective entity suggests that specific attention be extended at both the *process* and *structural* levels. Integration of this knowledge may prove a valuable means of reducing feelings of isolation and in turn, lead to an increased sense of connectivity and ultimately, the students' persistence (Harrington, as cited in Sweet, 1986).

It is pertinent within this discussion to consider the important notion of social presence (Tu, 2000; Tu & McIsaac, 2002). Social presence is described by Tu & McIsaac as "the degree of feeling, perception, and reaction to another intellectual entity in the CMC environment" (p. 146). In this regard, although the current research initiatives did not overtly examine social presence, written discourse evidenced postings that clearly established and acknowledged other intellectual entities within the asynchronous threaded discussion board. The instructional method of discussion and its use as analyzed throughout the open, axial, and selective coding processes (Strauss & Corbin, 1998), illustrated that the original instructional post and its subsequent

replies (or responses by the participants), encouraged members to introduce themselves. In essence, they began to establish their social presence among one another, gaining familiarity and perhaps, greater levels of confidence with their peers, as well as the course platform.

Although an introduction may appear to be a simplistic input within a system of variables set in motion to establish an online learning community, the output evidenced itself as a complex series of interactions whose impact may be experienced at levels beyond that of simply sharing a bit about oneself with a group of peers. In short, the introductory threaded discussion board served as the gateway to the implementation of adult learning principles that promoted Online GROUP Development. Without this opening for participants to establish themselves and begin to recognize the potential contributions of others, a learning community may not be given an equal foundation from which to grow. These findings are consistent with Alfred's (2002) support for the establishment of community through mechanisms that allow members to introduce themselves to the culture as a way of developing a social history with one another. Instructional design choices which consider the salient role of the introduction as a critical feature in the establishment of a learning community takes on much significance as it bears potential relevance in the ultimate retention of learners within the online course.

An important distinction to denote at this point in the discussion is that the role of the introduction was deliberately crafted by the instructors for the pivotal nature and purpose it serves in the establishment of a group learning culture, as well as for its potential impact on a plethora of far-reaching effects, such as that suggested in the

notion of increased persistence of the participants. However, its selection was not meant to eliminate nor decrease the value of the other stages within the Online GROUP Development theory that were presented elsewhere, as equal emphasis and attention is recommended for each of the stages when pedagogical decisions are being made.

Implication #2: Emphasis on Affective and Social Components of Written Discourse

Online learning environments grounded in socioconstructivist principles must seek the intentional building of a group learning environment (McDonald & Gibson, 1998). The results indicate that within e-learning, participants who demonstrate professional courtesy, interest, and respect for the salient roles that each member has within this unique course environment, including the role of the instructor, help shape and define the group culture as one that is capable of promoting the social construction of knowledge. From an adult learning perspective, the results lend support to the value placed on the ability of the adult educator “to create a responsible learning environment where students can participate in the discourse of learning without sacrificing their personal or cultural identity” (Alfred, 2002, p. 3). In this sense, the results support the notion that learning can be achieved in a sociocultural context rather than one which is more cognitive and individualistic where it operates “independent of context and interaction” (Alfred, p. 4).

The creation of a learning environment that intentionally pursued the written interaction of its participants was structured into the foundation of each course, and in all instances, was encouraged and rewarded by the instructors. Thus, acknowledgment is given for the pertinent role of the technology for providing the medium to support the context of asynchronous written discourse, as well as to the instructors who

facilitated both the *process* and the *structure* of an electronic learning environment where discourse was viewed as a primary way to engage the learners. As one instructor noted, “As an instructor I also believe that we construct knowledge together. That’s why I like doing activities...I am also a learner. I want to learn from them. What do they know? What experiences do they have?” As noted, emphasis was placed on the instructor as an engaged learner, an “equal” to the participants. This is directly consistent with adult learning principles that advocate for an equality among and between the participants and the facilitator (Brookfield, 1990; Knowles, 1995, 1998).

In the particular instances of the five courses analyzed within this research, repeated observations of the same phenomenon yielded pertinent information related to the knowledge that the participant brings to the context from a cognitive perspective, but affective and social components were visible as well in the way in which participants placed value on the written discourse. As a result, keen attention can and should be paid to the specific role of the participants’ holistic presence (e.g., cognitive, affective, and social) within the online course discussion setting.

Specifically, the participant input variables as defined within the results of this research, bear particular relevance to a discussion on implications and specifically argue for the implementation of “cardinal rules” that can assist participants in gaining knowledge not only with regard to role expectation or to the establishment of group norms within, but how to increase their individual opportunity to obtain deep and meaningful learning that is durable in nature (Knowlton, 20001). If members can be encouraged toward behavior that is akin to the participant input variables established within the results section, then a tone can be set in motion which specifically seeks

written discourse that is akin to responsible online communication norms. In this regard, this research advances beyond the realm of “net etiquette” or what is a polite and proper way to craft an appropriate post, and extend much deeper into the realm of providing a foundation from which group learning can be sought. These cardinal rules of interaction are ones in which members demonstrate: (a) a desire to learn; (b) willingness to learn from others; (c) placement of value in the means of communication; (d) an acceptance responsibility to construct knowledge; (e) modeling behavior; (f) professionalism, using courtesy and respect to communicate with others.

Moreover, these cardinal rules support the notion of the need to balance both the socioemotional and task needs of the group as originally established in traditionally-based groups or those that are face-to-face (Bales, 1950). Hence, “A well-developed group suggests that its members are capable of productive work and have learned to maintain an equilibrium between task-related and socioemotional needs” (Chidambaram & Bostrom, 1996, p. 180). If groups are said to develop when equilibrium is maintained between the socioemotional and task needs of the members (Bales), then the establishment of cardinal rules can assist in laying the groundwork for the successful maintenance of these principles.

Furthermore, the results speak to the undeniable and essential role that the participants have in the actual development of a group culture. As noted by Schwier (2001), participants must be motivated to create a learning community and then be given the space necessary to create it. Implications suggest that even if attention to all of the other variables (course platform and instructor input) are tended to, without the explicit desire of the learner to be motivated to help establish and create the learning

environment, which includes an incorporation of the cardinal rules as the central component, the *process* of online GROUP development would most likely falter. Therefore, an acknowledgment of the power generated by the participants can be utilized to educate and facilitate the expectations and opportunities for growth that may exist within a cooperative venue. These implications relate to the role of students in the establishment of communities of practice (Barab, Barnett, & Squire, 2002). Barab et al. discuss the important role of communities as practice as “students learn from their participation in the community” because the communities of practice provide a “structure for student participation” (p. 528). Thus, in order to further promote and nurture a community of practice, participant input variables might be best incorporated into a best practices model and given to the participant as a way to help clarify the course structure. This idea is consistent with the Institute for Higher Education Policy (2000) in which emphasis is placed on the provision of information related to self-motivation and technology needs, as well as clearly written statements related to course objectives and learning outcomes.

Implication #3: The Promotion of Cognitive Complexity in the Group Environment

An ultimate goal of teaching, whether delivered in the online or face-to-face setting, is that the learners evidence an ability to demonstrate higher levels of critical thinking. Garrison, Anderson, and Archer (2001) referenced this goal by noting, “A major challenge facing educators using CMC is the creation of a critical community of inquiry—the hallmark of higher education—within a virtual text-based environment” (p. 7).

The results of this specific research reference the obtainment of this hallmark through findings that correlated higher levels of cognitive interaction with more advanced levels of group development. The implication suggests that when the instructional design process attends to both the *process* and the *structure* of group development, then a climate that nurtures and scaffolds learners toward higher levels of critical thinking through the social construction of knowledge, bears important relevance in the obtainment of knowledge that is generative and durable in nature (Knowlton, 2001; Morrison, Ross, & Kemp, 2001).

Acknowledgement that group *process* is directly related to the group's *structure* was critical in that it was the group *structure* that was strategically set in motion to specifically promote increased levels of cognitive complexity through a desired learning community. If learners work independently and interdependently in this type of setting, then they are more likely to utilize one another to reach higher levels of critical thinking within themselves. Thus, designing a course environment that is sensitive to both the progressive nature involved in the *process* of online group must also take into consideration the *structure* upon which the group development process is based. Hence, implications speak to the importance in consciously and explicitly tending to the strategic correlation between the design of discussion board prompts with the intentional scaffolding of higher levels of cognitive complexity.

Implication #4: Instructors as Facilitators of Process and Structure

In a similar vein, when keen attention is paid to the *process* of group development, instructors can better understand their roles throughout the duration of the course, thus lending stability to the both the *process* and the *structure*. Within the

instance of the results presented herein, the instructors operated in terms much more characteristic of an active participant observer (Merriam, 1998). The “active” participation of the instructors implies that they are active listeners (observers) much more than they are overtly “verbal.” These findings are consistent with research that suggests instructors engage themselves as facilitators or moderators of the discourse (Bonk & Dennen, 2003; Bonk et al., 2004; Palloff & Pratt, 2001; Salmon, 2003; Youngblood et al., 2001). Implications suggest that instructors continue in this role, which subsequently fosters the development of the group’s ability to work collectively with one another and to help take responsibility for their learning, as well as the learning of their peers, within the e-learning setting (*process*). In this respect, participants sought each other out for direction and guidance, and specifically for assistance from their peers.

Implications suggest that instructors must tend to responsibilities at the *structural* level as well. This attention should be paid at the initial curriculum design stage or in a course that has already been designed, as part of an ongoing evaluation (Institute for Higher Education Policy, 2000). Attention to variables associated not only with the course platform and its computer mediated communication variables, but with those that center on systematic decisions that are made related to the appropriate incorporation of learning theory within the medium and as a way to assist learners with the achievement of learning objectives. Due the preeminence of the socioconstructivist learning principles within the design phase of online coursework, it also becomes salient to consider how groups of learners come together in the online setting to develop into a learning community. Again, attention to how the *process* of Online

GROUP Development might be integrated at the *structural* level in the design or evaluation phases bears important implications for the role of the online course designer and/or online instructor.

Implication #5: Quantity vs. Quality of Interaction

An additional implication suggests that online group development need not be defined by the level (or quantity) of gregariousness (branching to one another) necessarily within a course, but by the ability of the colleagues to work professionally with one another, as they each take ownership for their learning and share in the responsibility to assist peers in the active process of knowledge construction. In other words, it is not necessarily the amount of interaction, but the quality of how participants interact through their written discourse, that is conducive to nurturing an environment that promotes group learning.

This notion is supported by Chidambaram and Bostrom (1996), who contended that “An important (and visible) aspect of group behavior is the extent and quality of communication among members” (p. 180). In these instances the quality of communication was fostered by a variety of variables primarily at the *structural* level. As a result, the extent of the communication resulted in the ability of the groups to transcend temporal and geographical separation to achieve Online GROUP Development levels capable of fostering advanced levels of cognitive complexity.

Implication #6: Instructional Methods Promote Modeling and the Social Construction of Knowledge

Implications suggest that instructional methods such as video simulation that portrayed real-life professionals in action, demonstrated an effective way to implement

course content. This holds particular salience to participants, especially in the online setting as it speaks to the value they place on being able to see and hear course content put into action within authentic environments. This finding relates to Gardner's (1983) research on multiple intelligences and the need to employ multiple ways of tapping into the learner's senses in order to motivate and engage them within the learning material. As one instructor explained, the video models were selected for their ability to demonstrate several ways and techniques of implementing the learning objectives within the course.

This further supports the analysis of how various learning theories contribute to the decision-making process of online course designers. In the particular instance of this research analysis, video streaming bears important implications for course designers to consider how social learning theory, with its emphasis on modeling through observation (Merriam & Caffarella, 1999) may be infused into the curriculum. For example, the ability of the learners to relate to the model teachers (as seen in the videos) actively placed the model teachers in a role of mentor or guide. In other words, the video mentors served to promote the "underdeveloped student" beyond the individual's zone of proximal development (Bonk & Cunningham, 1998; Vygotsky, 1978).

Likewise, the socioconstructivist learning theory (Vygotsky, 1978) can be considered in this realm as well as it can be designed and delivered to co-exist and enhance particular instructional methods within the online medium. For example, there was a specific utility observed throughout the analysis in which the instructors designed a space for participants to dialogue through written discourse about their

reaction to the video mentors. The results seemed to catapult the conversation into levels where participants evidenced greater levels of critical thinking. This demonstration of increased levels of cognitive thinking was observed as one of the primary ways that learners developed with one another within their written discourse. In fact, each stage of GROUP was significantly defined through this evidence of increased cognitive interaction. Perhaps the timing or strategic location of specific instructional methods as a way to promote Online GROUP Development and its correlated levels of cognitive complexity, is a key component to be considered in the instructional design process.

Implication #7: Online GROUP Development as a Hybrid Model

A final implication suggests placement of this particular substantive theory into a group development classification system. The substantive theory of Online GROUP Development presented within this research incorporated two components that are vital to its articulation: the integration of *process* with *structure*. The *process* of Online GROUP Development becomes a salient theme to understanding the progressive nature of how patterns of online group communication are established and nurtured, however, it cannot be underscored the by the necessary and critical variables that the instructor, participants, and course management system bring (*structure*).

In an attempt to classify the results of this research into a major classification system of group development models (progressive, cyclical, or non-sequential, as described in Chapter III), Online GROUP Development was found to be a substantive theory that is more than a progressive series of stages in which community and learning are subsequently engendered (Mennecke et al., 1992), but instead, a hybrid

model in that it moves beyond a linear process as seen in the progressive models. Online GROUP Development also contains elements of the cyclical model as it references a birth (Greeting Stage), growth (Relating, Operating, and Unifying Stages), and death (Parting Stage) of the group's functioning (Carabajal et al., 2003). Moreover, it contains elements of the non-sequential model as well in that it looks at contingent variables that impact the group's functioning (Carabajal et al., 2003; Chidambaram & Bostrom, 1996). A unique set of input variables stemming from computer mediated communication (MCP1), instructional stance (MCP2), and participant input (MCP3) were found to form the foundation (*structure*) from which the process of group development could occur.

Thus, implications suggest that it is important for practitioners to attend to far more factors outside of the action/interaction, and its consequences primarily denoted through a *process*, but pay even closer attention to the appropriate design of the foundation that promotes the *structure* as well. When features such as these major variables are taken into consideration, then vital attention has been paid to the invaluable role that they have on the "system" or the ability of the "group" to operate at the higher levels of Online GROUP Development.

In conclusion, the above implications suggest that both the *process* and *structure* involved in the generation and procurement of online group development bear significant relevance to the effective design and delivery of online instruction. As a substantive theory of group development has been delineated within the results of this research, the overarching implication suggests that through the effective implementation and facilitation of Online GROUP Development variables such as

those established herein, the more effective the environment for the promotion of group learning principles. Hence, the greater the ability to procure learning objectives that target demonstrably higher levels of learning on the behalf of the learner, thus promoting learning that is more relevant, meaningful, and durable in its reality to the learner. Therefore, online group development theory, which includes a discussion of learning theory and instructional design as it relates to the online learning environment, bears particular relevance as online courses can be designed to promote group process which cultivates a learning community engaged in self-directed and collaborative dialogue that enhances the ability of participants to obtain higher levels of critical thinking. Although they all tie directly to the development on an online pedagogical/ andragogical approach to course design, they have further implications in that they can be used as a model for policy makers who make important decisions related to research developments within the field.

Limitations

There are several predominant limitations that exist within this research. First, due to the nature of the research qualitative methodology used, the results are not generalizable to the population beyond which the data was taken (Merriam, 1998). The researcher attempted to accommodate for this through theoretical saturation of the data, which included data sets from five separate course sections as a way to promote reliability and validity within and across each course section.

Second, derived from a qualitative paradigm where experimental manipulation of the data was an appropriate methodology for research questions that demanded an inductive understanding of the phenomenon at work, the results are subject to

researcher bias (Merriam, 1998). Although great measure was taken to use multiple methods of data collection within the analysis process to promote triangulation, the results would benefit from the merits of inter-rater reliability in which the results, including the “indicators” for each of the five stages, could be tested. As Strauss and Corbin (1998) emphasized, the testing of a theoretical explanatory framework is more applicable to studies which could use deductive methods as a means to test their validity and reliability. In this sense, the researcher exhausted efforts to microscopically analyze the data, thus producing a grounded theory in which the data was theoretically saturated. It thus serves as a model that makes a valuable contribution to the field of online learning that can subsequently be further analyzed.

Third, although the students who served as participants varied in each of the five course sections, they shared many similarities, which may have impacted their ability to form as a group. As the majority of the participants were graduate-level (and beyond), practicing educators, and female, analysis involving more dissimilar participants would increase the potential to generalize the research findings. Although Glaser and Strauss (1967) advocated the pros and cons of similar data sets and dissimilar data sets, the researcher did include five separate course sections (all different participants) in an attempt to be able to theoretically saturate the data.

A fourth limitation relates to the fact that the data sets collected were primarily from the year 2002 (four courses) and from 2004 (one course). The elapse of time made it difficult to conduct interviews with the former participants. The ability to conduct interviews with the students would have the potential to further validate the findings. An attempt to overcome this limitation was the inclusion of data sets from

five course sections, interview data with four instructors which included member checking, and summative evaluations that were available from the participants of the course (Merriam, 1998).

Implications for Research

The results of this research suggest important research that might follow and provide additional insight into the phenomenon of how groups of individuals communicate and develop through asynchronous written discussion board posts. These suggestions follow.

Because this research was based on a limited field of professionals (educators), additional grounded theory studies that similarly analyzes different patterns of communication among differing vocations, may yield advanced understanding of how groups develop in a setting denoted as CMC. A subsequent cross-comparative approach could be utilized in an attempt to integrate the findings of future studies with the current one. Similarly, grounded theory studies that examined the written discussion board posts from participants of different backgrounds when the instructors operate from learning theories (or without learning theory) other than the socioconstructivist perspective may result in enhanced findings that are more cross-sectional in their approach and thus, perhaps more generalizable to the adult learners in the online education and training sector altogether.

The results of the research analyzed within this specific study focused on a group of participants who were at least graduate level in rank, and most of whom, who were currently employed within their field. Admittedly, these individuals may be more self-directed when compared to some of their undergraduate counterparts. A similar

study conducted on undergraduate students or training participants who are not operating from a graduate-level background could be examined to analyze how patterns of communication may differ from those who are enrolled in a graduate-level professional development course. Would a process of online group development ensue? If yes, what would it look like?

Future research that examined the role of social presence within the course that sought the strategic positioning of group development within its setting would inevitably prove insightful. Moreover, research that built on this premise by analyzing which specific strategies increased social presence and then correlated this with levels of “group” would make for potentially significant findings.

The research presented within referenced a group of participants as they witnessed overall levels of progression within their written discourse. This analysis did not consider or trace individual members and their respective “acts” within the group framework. Research is needed that considers the contributions (or lack there of) of individuals throughout their respective discussion posts. This analysis may yield more about the importance and relevance of being part of community. For example, what happens when each individual subject’s development through the stages is tracked (as opposed to a group as one subject entity)? Additionally, if an individual who was determined to be a “non-completer” was tracked, analysis might yield implications on the conditions that contributed to the unsuccessful retention of the learner within the e-learning/training setting.

The acts of both “online talking” and “online listening” have strong implications as they reference a more mature modality of communication; one in which

participants move beyond simply responding to instructor-designed prompts in order to earn “participation points,” but transcend into an environment that respects and values what others have to contribute, while simultaneously recognizing that what they have to say plays as valid a role as listening. This is akin to the notion of “being involved” (Chidambaram & Bostrom, 1996) and lends affirmation to the salient nature of individual commitment to the group. Perhaps the group development obtained in the courses studied within could be correlated to commitment levels on behalf of the participants to their online colleagues. Would individual levels of commitment correlate with the ability of the group to progress through Online GROUP Development? Furthermore, what happens to the progression of the group through the respective stages when individual commitment fails?

Finally, research that sought quantitative analysis that could test the major categorical features outlined in this research, as well as any additional components related to the structure and process of the substantive theory, may yield important findings that would further enhance the knowledge gained in the present study. This may have the ability to integrate the research paradigms into a comprehensive theory capable of generalization beyond that which can be said to exist within the qualitative paradigm (Merriam, 1995, 1998).

Summary

In summary, in response to a call from distance education researchers to “examine the patterns, cycles, and interrelationships of online groups in order to derive models, laws, and theories of online group development” (Carabajal et al., 2003), this research responded through the utilization of the grounded theory methodology to

develop a substantive theory of Online GROUP Development as it evolved within the context of asynchronous written discourse in the threaded discussion boards of five separate sections of one identical course subject. As such, the “pressing need to investigate how online communities are formed and sustained” (Bonk & Dennen, 2003) was responded to within the analysis of the data.

The results of this research yielded an integrated framework that helped elucidate the *process* and the *structure* inherent within the phenomenon of online group development. Specifically, results indicated that the *process* of online group development unfolded due to several key input variables that promoted the *structure* of the course. Thus, in asynchronous learning environments where communication through the threaded discussion board feature is the primary manner in which participants “discuss” course material, the promotion of a *structure* that supports the *process* of online group development become key considerations in the design and delivery of electronic learning environments capable of sustaining learning theory which promotes group learning as a necessary way to enable both generative and durable knowledge construction.

REFERENCES

- Alfred, M. V. (2002). The promise of sociocultural theory in democratizing adult education. *New Directions for Adult and Continuing Education*, 96, 3-13.
- Anderson, R. C. (1984). *A schema-theoretic view of basic processes in reading comprehension*. (Report No. 306). Washington, DC: National Institute of Education.
- Anderson, T. (2003). Modes of interaction in distance education: Recent developments and research questions. In W. G. Anderson (Eds.), *Handbook of distance education* (pp.129-144). Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.
- Aviles, C. B. (1999, March). *Understanding and testing for "critical thinking" with Bloom's Taxonomy of Educational Objectives*. Paper presented at the Annual Meeting of the Council on Social Work Education, San Francisco, CA.
- Bales, R. F. (1950). *Interaction process analysis*. Cambridge, MA: Addison-Wesley Press, Inc.
- Barab, S.A., Barnett, M., & Squire, K. (2002). Developing and empirical account of a community of practice: Characterizing the essential tensions. *The Journal of the Learning Sciences*, 11(4), 489-542.
- Benis, W. G., & Shepard, H. A. (1956). A theory of group development. *Human Relations*, 9, 415-437.
- Berge, Z. L., & Muilenburg, L. (2000, September-October). Designing discussion questions for online, adult learning. *Educational Technology*, 53-56.
- Bibeau, S. (2001). Social presence, isolation, and connectedness in online teaching and learning: From the literature to real life. *Journal of Instruction Delivery Systems*, 15(3), 35-39.
- Biswelo, P. (2001). The systems approach as a catalyst for creating an effective learning environment for adults in part-time and distance learning. *Convergence*, 34(1), 53-66.

- Bloom, B. S., Engelhart, M. D., Furst, E. J., Hill, W. H., & Krathwohl, D. R. (1956). *Taxonomy of educational objectives*. New York: David McKay Company.
- Bonk, C. J. (2003, February). *Navigating the myths and monsoons of online learning strategies and technologies*. Keynote paper presented at the E-ducation Without Borders Conference, Abu Dhabi, United Arab Emirates.
- Bonk, C. J., & Cunningham, D. J. (1998). Searching for learner-centered, constructivist, and sociocultural components of collaborative educational learning tools. In C. J. Bonk & K. S. King, (Eds.), *Electronic collaborators: Learner-centered technologies for literacy, apprenticeship, and discourse* (pp. 25-50). Mahwah, N.J.: Lawrence Erlbaum Associates, Publishers.
- Bonk, C. J., & Dennen, V. (2003). Frameworks for research, design, benchmarks, training, and pedagogy in web-based distance education. In W. G. Anderson, (Eds.), *Handbook of Distance Education* (pp.331-348). Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.
- Bonk, C. J., Wisner, R. A., & Lee, J. (2004). Moderating learner-centered e-Learning: Problems and solutions, benefits and implications. In T. S. Roberts (Ed.), *Online collaborative learning: Theory and practice* (pp. 54-85). Hershey, PA: Idea Group.
- Brookfield, S. D. (1986). *Understanding and facilitating adult learning*. San Francisco: Jossey-Bass Publishers.
- Brookfield, S. D. (1990). Discussion. In M.W. Galbraith, (Ed.), *Adult learning methods: A guide to effective instruction* (pp. 187-204). Malabar, FL: Robert E. Krieger Publishing Company.
- Brookfield, S. D. (2003). A critical theory perspective on accelerated learning. *New Directions for Adult and Continuing Education*, 97, 73-82.
- Carabajal, K., LaPointe, D., & Gunawardena, C. N. (2003). Group development in online learning communities. In M. G. Moore & W. G. Anderson (Eds.), *Handbook of distance education* (pp. 217-234). Mahwah, NJ: Lawrence Erlbaum Associates.
- Chidambaram, L., & Bostrom, R. P. (1996). Group development (I): A review and synthesis of development models. *Group Decision and Negotiation*, 6, 159-187.
- Cutcliffe, J. R. (2000). Methodological issues in grounded theory. *Journal of Advanced Nursing*, 3(6), 1476-1484.

- Dey, I. (1999). *Grounding grounded theory: Guidelines for qualitative inquiry*. San Diego: Academic Press.
- Driscoll, M. P. (2002). Psychological foundations of instructional design. In R. A. Reiser & J. V. Dempsey (Eds.), *Trends and issues in instructional design and technology* (pp. 57-69). Columbus, OH: Merrill Prentice Hall.
- EduTools. Product Comparison. (n.d.). Retrieved May 5, 2004, from <http://www.edutools.info/course/compare/compare.jsp?product=216,144,175>
- Ertmer, P. A., & Newby, T. J. (1993). Behaviorism, cognitivism, constructivism: Comparing critical features from an instructional design perspective. *Performance Improvement Quarterly*, 6 (4), 50-72.
- Galbraith, M. (Ed.). (1990). *Adult learning methods: A guide for effective instruction*. Malabar, FL: Robert E. Krieger Publishing Company.
- Gall, M. D., Borg, W. R., & Gall, J. P. (1996). *Educational research: An introduction* (6th ed.). White Plains, NY: Longman Publishers.
- Gardner, H. (1984). *Frames of mind: The theory of multiple intelligences* (2nd ed.). New York: Basic Books, a Division of HarperCollins Publishers.
- Garrison, R. (2000). Theoretical challenges for distance education in the 21st century: A shift from structural to transactional issues. *International Journal of Research in Open and Distance Learning*, 1 (1). Retrieved March 31, 2005 from <http://www.irrodl.org/content/v1.1/randy.html>.
- Garrison, D. R., Anderson, T., & Archer, W. (2001). Critical thinking, cognitive presence, and computer conferencing in distance education. *The American Journal of Distance Education* 15(1), 7-23.
- Gersick, C.J.G. (1988). Time and transition in work teams: toward a new model of group development. *Academy of Management Journal*, 31(1), 9-41.
- Glaser, B. (1992). *Basics of grounded theory analysis: Emergence vs. forcing*. Mill Valley, CA: Sociology Press.
- Glaser, B., & Strauss, A. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago: Aldine Publishing Company.
- Gunawardena, C. N., Nolla, A. C., Wilson, P. L., Lopez-Islas, J. R., Ramirez-Angel, N., & Megchun-Alpizar, R. M. (2001). A cross-cultural study of group process and development in online conferences. *Distance Education*, 22(1), 85-121.

- Haig, B. D. (1995). *Grounded theory as scientific method*. Philosophy of Education Yearbook, a publication of the Philosophy of Education Society. Retrieved January 31, 2005 from http://www.ed.uiuc.edu/EPS/PES-Yearbook/95_docs/haig.html
- Hara, N., Bonk C. J., & Angeli, C. (2000). Content analysis of online discussion in an applied educational psychology course. *Instructional Science*, 28, 115-152.
- Harasim, L. (2000). Shift happens: Online education as a new paradigm in learning. *The Internet and Higher Education*, 3, 41-61.
- Hare, A. P. (1973). Theories of group development and categories for interaction analysis. *Small Group Behavior*, 4 (3), 259-304.
- Hassenplug, C. A., & Harnish, D. (1998). The nature and importance of interaction in distance education credit classes at technical institutes. *Community College Journal of Research and Practice*, 22, 591-605.
- Huang, H. (2002). Toward constructivism for adult learners in online learning environments. *British Journal of Technology*, 33 (1), 27-37.
- Im, Y., & Lee, O. (Winter 2003-2004). Pedagogical implications of online discussion for preservice teacher training. *Journal of Research on Technology in Education*, 36 (2), 155-170.
- Institute for Higher Education Policy (2000). *Quality on the line: Benchmarks for success in Internet-based distance education*. Retrieved August 29, 2004 from <http://www.ihep.com/Pubs/PDF/Quality.pdf>
- Johnson, S. D., & Aragon, S. R. (2003). An instructional strategy framework for online learning environments. *New Directions for Adult and Continuing Education*, 100 (3), 31-43.
- Johnson, S. D., Suriya, C., Yoon, S. W., Berrett, J. V., & LaFleur, J. (2002). Team development and group process of virtual learning teams. *Computers and Education*, 39, 379-393.
- Jung, I., Choi, S., Lim, C., & Leem, J. (2002). Effects of different types of interaction on learning achievement, satisfaction and participation in web-based instruction. *Innovations in Education and Teaching International*, 39 (2), 153-162.
- Kling, R., & Courtright, C. (2002). Group behavior and learning in electronic forums: A socio-technical approach. In S. A. Barab, R. Kling, & J. H. Gray (Eds.),

- Designing for virtual communities in the service of learning* (pp. 91-119). New York: Cambridge University Press.
- Knowles, M. (1990). *The adult learner: A neglected species* (4th ed.). Houston, TX: Gulf Publishing Company.
- Knowles, M. (1995). *Designs for adult learning: practical resources, exercises, and course outlines from the father of adult learning*. Alexandria, VA: American Society for Training and Development.
- Knowles, M., Holton, E. F., & Swanson, R. A. (1998). *The adult learner: The definitive classic in adult education and human resource development* (5th ed.). Houston, TX: Gulf Publishing Company.
- Knowlton, D. S. (2001, April). *Promoting durable knowledge construction through online discussion*. Paper presented at the Proceedings of the Annual Mid-South Instructional Technology Conference, Murfreesboro, TN.
- Knowlton, D. S., Knowlton, H. M., & Davis, C. (2000). The whys and hows of online discussion. *Syllabus*, 13(10), 54-56, 58.
- Liaw, S., & Huang, H. (2000). Enhancing interactivity in web-based instruction: Review of the literature. *Educational Technology*, 40(3), 41-45.
- Lim, C. K. (2001). Computer self-efficacy, academic self-concept, and other predictors of satisfaction and future participation of adult distance learners. *The American Journal of Distance Education*, 15(2), 41-51.
- Lindeman, E. C. (1926). *The meaning of adult education*. New York: New Republic.
- Lock, J. V. (2002). Laying the groundwork for the development of learning communities within online courses. *The Quarterly Review of Distance Education*, 3(4), 395- 408.
- Long, H. B. (1990). Understanding adult learners. In M. W. Galbraith (Ed.), *Adult learning methods*. Malabar, FL: Robert E. Krieger Publishing Company.
- Mann, R. D., Gibbard, G. S., & Hartman, J. J. (1967). *Interpersonal styles and group development*. New York: John Wiley & Sons.
- McDonald, J. (1998, August). *Interpersonal group dynamics and development in computer conferencing: The rest of the story*. Paper presented at Distance Learning '98. Proceedings of the Annual Conference on Distance Teaching and Learning, Madison, WI.

- McDonald, J., & Gibson, C. C. (1998). Interpersonal dynamics and group development in computer conferencing. *The American Journal of Distance Education, 12*(1), 7-25.
- McGrath, J. E. (1990). Time matters in group. In J. Galegher, R. E. Kraut, & C. Egido (Eds.), *Intellectual teamwork, social and technological foundations of cooperative work*. Hillsdale, NJ: Lawrence Erlbaum.
- McGrath, J. E. (1991). Time, interaction, and performance (TIP): A theory of groups. *Small Group Research, 22*(2), 147-174.
- McGrath, J. E., & Hollingshead, A. B. (1994). *Groups interacting with technology: Ideas, evidence, issues, and an agenda*. Thousand Oaks, CA: Sage Publications.
- Mehrotra, C. M., Hollister, C. D., & McGahey, L. (2001). *Distance learning: Principles for effective design, delivery, and evaluation*. Thousand Oaks: Sage Publications.
- Mennecke, B. E., Hoffer, J. A., & Wynne, B. E. (1992). The implications of group development and history for group support system theory and practice. *Small Group Research, 23*(4), 524-572.
- Merriam, S. B. (1995). What can you tell from an N of 1?: Issues of validity and reliability in qualitative research. *PAACE Journal of Lifelong Learning, 4*, 51-60.
- Merriam, S. B. (1998). *Qualitative research and case study applications in education* (2nd ed.). San Francisco: Jossey-Bass.
- Merriam, S. B., & Caffarella, R. S. (1999). *Learning in adulthood: A comprehensive guide* (2nd ed.). San Francisco: Jossey-Bass.
- Mezirow, J. (2000). Learning to think like an adult: Core concepts of transformation theory. In J. Mezirow & Associates (Eds.), *Learning as transformation: Critical perspectives on a theory in progress* (pp. 3-33). San Francisco: Jossey-Bass.
- Mezirow, J., & Associates. (2000). *Learning as transformation: Critical perspectives on a theory in progress*. San Francisco: Jossey-Bass.
- Mills, T. M. (1964). *Group transformation: An analysis of a learning group*. New Jersey: Prentice-Hall.

- Moore, M. G. (1985). Some observations on current research in distance education. *Epistolodidaktika*, 1, 35-62.
- Moore, M. G. (2003). *From chautauqua to the virtual university: A century of distance education in the United States*. Information series no. 393. Retrieved October 30, 2004, from The Ohio State University, Center of Education and Training for Employment, College of Education Web site: <http://www.cete.org/acve>
- Morrison, G. R., Ross, S. M., & Kemp, J. E. (2001). *Designing effective instruction* (3rd ed.). Hoboken, NJ: John Wiley & Sons.
- Morrison, G. R., Ross, S. M., & Kemp, J. E. (2004). *Designing effective instruction* (4th ed.). Hoboken, NJ: John Wiley & Sons.
- Naidu, S. (2003). Designing instruction for e-Learning environments. In M.G. Moore & W. G. Anderson, (Eds.), *Handbook of distance education* (pp. 349-365). Mahwah, NJ: Lawrence Erlbaum Associates.
- National Center for Educational Statistics. (2004). *The conditions of education. Indicator 32, Distance Education at Postsecondary Institutions*, NCES 2004-077, by J. Wirty, S. Choy, P. Rooney, S. Provasnik, A. Sen, R. Tobin. Washington, DC: 2004. Retrieved February 2, 2004 from http://nces.ed.gov/programs/coe/2004/pdf/32_2004.pdf
- National Center for Educational Statistics. (2003). *Distance education at degree-granting postsecondary institutions: 2000-2001*, NCES 2003-017, by Tiffany Waits and Laurie Lewis. Project Officer: Bernard Greene. Washington, DC. Retrieved November 23, 2003 from <http://nces.ed.gov/pubs2003/2003017.pdf>.
- Newton, E., Oswald, R., & Stuart, D. (2002). Delivering standards-based professional development online. *Mid-Western Educational Researcher*, 15(4), 16-21.
- Nicholson, S. A., & Bond, N. (2003). Collaborative reflection and professional community building: An analysis of preservice teachers' use of an electronic discussion board. *Journal of Technology and Teacher Education*, 11(2), 259-279.
- Nipper, S. (1989). Third generation distance learning and computer conferencing. In R. Mason & A. Kaye (Eds.), *Mindweave: Communication, computers and distance education*. Toronto: Pergamon Press.
- Palloff, R. M., & Pratt, K. (1999). *Building learning communities in cyberspace: Effective strategies for the online classroom*. San Francisco: Jossey-Bass Publishers.

- Palloff, R. M., & Pratt, K. (2001). *Lessons from the cyberspace classroom: The realities of online teaching*. San Francisco: Jossey-Bass.
- Porter, L. (2004). *Developing an online curriculum: Technologies and techniques*. Hershey, PA: Information Science Publishing.
- Saba, F. (2000). Research in distance education: A status report. *International Review of Research in Open and Distance Learning*, 1(1). Retrieved March 31, 2005 from <http://www.irrodl.org/content/v1.1/farhad.html>
- Salmon, G. (2003). *E-moderating: The key to teaching and learning online* (2nd ed.). New York: RoutledgeFalmer.
- Sarker, S., Lau, F., & Sahay, L. (2001). Using an adapted grounded theory approach for inductive theory building about virtual team development. *The DATA BASE for Advances in Information Systems*, 32(1), p. 38-56.
- Savery, J. (1998). Fostering ownership for learning with computer-supported collaborative writing in an undergraduate business communication course. In C. J. Bonk & K. S. King, (Eds.), *Electronic collaborators: Learner-centered technologies for literacy, apprenticeship, and discourse* (pp. 25-50). Mahwah, NJ: Lawrence Erlbaum Associates.
- Savery, J., & Duffy, T. M. (1995). Problem-based learning: An instructional model and its constructivist framework. *Educational Technology*, 35, 31-38.
- Schutz, W. C. (1966). *The interpersonal underworld*. A reprint edition of FIRO: A three-dimensional theory of interpersonal behavior. Palo Alto, CA: Science & Behavior Books.
- Schwier, R. A. (2001). Catalysts, emphases, and elements of virtual learning communities: Implications for research and practice. *Quarterly Review of Distance Education*, 2(1), 5-18.
- Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Sumner, J. (2000). Serving the system: a critical history of distance education. *Open Learning*, 15(3), 267-285.
- Sweet, R. (1986). Student drop-out in distance education: An application of Tinto's model. *Distance Education*, 7(2), 201-213.

- Tinto, V. (1998). Colleges as communities: Taking research on student persistence seriously. *The Review of Higher Education*, 21(2), 167-177.
- Tu, C. (2000). On-line learning migration: from social learning theory to social presence theory in a CMC environment. *Journal of Network and Computer Applications*, 23, 27-37.
- Tu, C., & McIsaac, M. (2002). The relationship of social presence and interaction in online classes. *The American Journal of Distance Education*, 16(3), 131-150.
- Tuckman, B. W. (1965). Developmental sequence in small groups. *Psychological Bulletin*, 63(6), 384-399.
- Tuckman, B. W., & Jensen, M. A., (1977). Stages of small-group development revisited. *Group & Organization Studies*, 2(4), 419-427.
- Valasek, T. (2001). *Student Persistence in web-based courses: Identifying a profile for success*. Retrieved March 13, 2004, from Raritan Valley Community College, Center for the Advancement of Innovative Teaching and Learning (CAITL): <http://www.raritanval.edu/departments/CommLanguage/full-time/valasek/MCF%20research.final.htm>
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. In M. Cole, V. John-Steiner, & E. Souberman (Eds.). Cambridge, MA: Harvard University Press.
- Waltonen-Moore, S., Stuart, D., Newton, E. Oswald, R., & Varonis, L. (2006). From virtual strangers to a cohesive online learning community: The evolution of online group development in a professional development course. *Journal of Technology and Teacher Education*, 14(2), 287-311.
- White, K. (2000). Face to face in the online classroom: Keeping it interpersonal and human. In K. W. White & B. H. Weight, (Eds.), *The online teaching guide: A handbook of attitudes, strategies, and techniques for the virtual classroom* (pp. 2-24). Boston: Allyn and Bacon.
- Williams, S. (2002). *Instructional design factors and effectiveness of web-based training/instruction*. Retrieved August 26, 2004, from The University of Georgia, College of Education Web site: <http://www.coe.uga.edu/hsp/monographs2/williams.pdf>
- Williams, S., Watkins, K., Daley, B., Courtenay, B., Davis, M., & Dymock, D. (2001). Facilitating cross-cultural online discussion groups: Implications for practice. *Distance Education*, 22(1), 11-167.

Youngblood, P., Trede, F., & DiCorpo, S. (2001). Facilitating online learning: A descriptive study. *Distance Education*, 22(2), 264-84.

APPENDICES

APPENDIX A

ESSENTIAL BENCHMARKS FOR INTERNET-BASED DISTANCE EDUCATION

Benchmarks

Institutional	• A documented technology plan that includes electronic security.
Support	• The technology delivery system is reliable and failsafe. • A centralized system supports distance education infrastructure.
Course Development	• Minimum standards met for course development, design, and delivery, and learning outcomes determine the technology used. • Frequent review of instructional materials to ensure standards. • Courses require analysis, synthesis, and evaluation.
Teaching/ Learning	• Student interaction with faculty and other students is essential. • Feedback to student is constructive and timely. • Students can conduct research/assess the validity of resources.
Course Structure	• Students advised about self-motivation and technology needs. • Students receive clearly written statements about course objectives, concepts, ideas, and learning outcomes. • Students can access library resources (e.g., a virtual library). • Faculty and students agree on deadlines and faculty response times.

APPENDIX A CONTINUED

Student Support	• Students receive information on admission requirements, tuition/fees, books/supplies, technical and proctoring requirements, and student support services. • Students receive hands-on training and information to secure materials through e-databases, interlibrary loans, etc... • Continuous technical assistance during course/program. • Questions/complaints to student services staff are answered accurately and efficiently.
Faculty Support	• Technical assistance is available and encouraged. • Support (and assessment) provided for course transition to web. • Training provided throughout course. • Written resources assist with use of electronically-accessed data.
Evaluation and Assessment	• Educational effectiveness and teaching/learning processes are assessed regularly. • Data on enrollment, costs, and uses of technology are used to help evaluate program. • Learning outcomes are reviewed regularly.

Note. For full text, read The Institute for Higher Education Policy's *Quality on the Line: Benchmarks for Success in Internet-Based Distance Education*, 2000, p. 25-26.

APPENDIX B

IRB APPROVAL



Office of Research Services and Sponsored Programs

Akron, OH 44325-2102
(330) 972-7666 Office
(330) 972-6281 Fax

July 21, 2005

Shelley Waltonen-Moore
2095 Field Circle Ave.
Akron, Ohio 44312

Ms. Waltonen-Moore:

The University of Akron's Institutional Review Board for the Protection of Human Subjects (IRB) completed a review of the protocol entitled "*A Grounded Theory of Online Group Development as Seen in Asynchronous Threaded Discussion Boards*". The IRB application number assigned to this project is **20050704**.

The protocol was reviewed on July 20, 2005 and qualified for exemption from continuing IRB review. The protocol represents minimal risk to subjects and matches the following federal category for exemption:

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information is recorded in such a manner that subjects can be identified, directly or through identifiers linked to subjects; AND (ii) any disclosure of responses outside the research could reasonably place the subjects at risk of civil or criminal liability or be damaging to subjects' financial standing, employability or reputation

Enclosed are the informed consent documents, which the IRB has approved for your use in this research. In addition, your request for a waiver of documentation of informed consent, as permitted under 45 CFR 46.117(c), is also approved.

Annual continuation applications are not required for exempt projects. If you make any changes or modifications to the study's design or procedures that either increase the risk to subjects or include activities that do not fall within one of the categories exempted from the regulations, please contact the IRB first, to discuss whether or not a request for change must be submitted. Any such changes or modifications must be reviewed and approved by the IRB prior to their implementation.

Please retain this letter for your files. If the research is being conducted for a master's thesis or doctoral dissertation, the student must file a copy of this letter with the thesis or dissertation.

Sincerely,



Sharon McWhorter
Associate Director

Cc: Walter Yoder, Interim Department Chair
Qetler Jensrud, Advisor
Phil Allen, IRB Chair

APPENDIX C

LETTER TO INSTRUCTORS



Department of Curricular and Instructional Studies

College of Education
Akron, OH 44325-4205
(330) 972-7765 Office
(330) 972-8150 Office
(330) 972-5209 Fax

DATE, 2005

Dear (insert name):

As part of my work toward a doctorate degree in the Department of Curricular and Instructional Studies, I am conducting a study related to online learning. Specifically, I am interested in whether online learning communities can and do develop as a result of the communication that occurs within this environment, specifically as seen on the threaded discussion board. I am primarily interested in ascertaining the instructional stance(s) from which you may have developed, managed, or facilitated the online **Guided Reading** course(s) during (Spring, Summer, and/or Fall) semester in year(s).

If you decide to participate in this study, I have approximately 15 semi-structured interview questions that I would like to ask you in person. Given the nature of the research, it may be necessary for me to conduct a follow-up interview with you in-person or over e-mail. In-person interview session(s) will be audiotaped. All interview data will be deidentified. I anticipate that the total interview process may take approximately three hours, with no more than 1.5 hours occurring at any given time. Participation in the interview(s) is completely voluntary and you can refrain from answering any or all questions without penalty or explanation. Your participation in the interview will serve as your consent. Please know that all of your responses will be deidentified and will remain confidential throughout the study and publication.

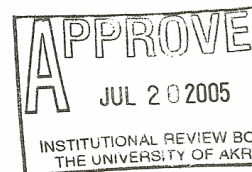
There are no anticipated risks to you as a participant. The benefits of your participation have the potential to greatly impact what is known about how to best design and deliver courses to adult learners in the web-based setting, with the ultimate goal being enhanced learning outcomes.

If you have questions or comments, please contact me (330-784-1547 or swalton@uakron.edu) or my advisor, Dr. Qetler Jensrud (330-972-6403 or qetler@uakron.edu). This research was approved by The Institutional Review Board for The Protection of Human Subjects at The University of Akron. Questions or comments can also be directed to the Institutional Review Board via Attention: Ms. Sharon McWhorter, Associate Director (330-972-8311 or 1-888-232-8790), Office of Research Services and Sponsored Programs, The University of Akron, Akron, Ohio 44325-2102.

I thank you for your consideration of this invitation. **If interested in participating, please notify me via phone or e-mail no later than DATE.**

Regards,

Shelley Waltonen-Moore, MA.ED.



SEMI-STRUCTURED INTERVIEW QUESTIONS FOR INSTRUCTORS

The nature of questions asked of all four instructors were built around the following areas:

1. Prior – Before the online course officially commenced

- Prior online teaching experience
- Course development
- Instructional stances used to guide course design
- Purpose/intent of threaded discussion board

2. During – after the online course officially commenced

- Instructional stances during – evolving role
- Modifications

3. After – after the online course ended

- Goal obtainment
- Modificaitons

APPENDIX D

IRB LETTER TO STUDENTS



Department of Curricular and Instructional Studies

College of Education
Akron, OH 44325-4205
(330) 972-7785 Office
(330) 972-8150 Office
(330) 972-5209 Fax

Date, 2005

Dear (insert name):

As part of my work toward a doctorate degree in the Department of Curricular and Instructional Studies, I am conducting research related to online learning. I am interested in whether learning communities can and do develop as a result of the communication seen on the threaded discussion board. As a participant in the **Guided Reading** online course offered in the Fall of 2004, I am specifically interested in ascertaining your perceptions of your experience in the online setting.

If you decide to participate, I have 9 questions that I would like you to ask you about your online experience (see below). You will have two weeks to craft and return your responses to me via e-mail at swalton@uakron.edu (insert date). I estimate that your involvement will take approximately 30 minutes. However, given the nature of the research, it may be necessary for me to seek clarification of your responses in a follow-up e-mail. Participation is completely voluntary and you can refrain from answering any or all questions without penalty or explanation. Your return of the attached questionnaire will serve as your consent. All of your responses will remain confidential as all identifying information including your name and e-mail address will be deidentified, thus protecting your anonymity.

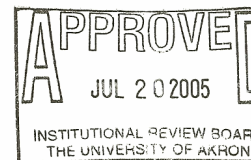
There are no anticipated risks to you as a participant. The benefits of your participation have the potential to greatly impact what is known about how to best design and deliver courses to adult learners in the web-based setting, so as to have the ultimate goal of improving our understanding of how to enhance learning outcomes.

If you have questions or comments please contact me (330-972-6966 or swalton@uakron.edu) or my advisor, Dr. Qetler Jensrud (330-972-6403 or qetler@uakron.edu). This research was approved by The Institutional Review Board for The Protection of Human Subjects at The University of Akron. Questions or comments can also be directed to the Institutional Review Board via Attention: Ms. Sharon McWhorter, Associate Director (330-972-8311 or 1-888-232-8790), Office of Research Services and Sponsored Programs, The University of Akron, Akron, Ohio, 44325-2102.

I thank you for your consideration of this invitation.

Fondly,

Shelley Waltonen-Moore, MA.ED., A.B.D.
swalton@uakron.edu



SURVEY QUESTIONS FOR STUDENTS

Survey Questions for Students in Online Guided Reading Course Fall 2004

Directions: Thank you in advance for answering the following questions. Feel free to use as much space as needed. Please send your responses as a reply to this e-mail to swalton@uakron.edu by insert date. I appreciate your assistance tremendously.

1. Have you ever taken an online course before?
2. If yes, please describe your overall experience. If not, what did you think of your first experience in the Guided Reading courses?
3. How would you describe the instructor's contributions on the threaded discussion board?
4. How would you describe your contributions on the threaded discussion board?
5. How valuable is interaction with your peers/instructor in the traditional face-to-face classroom to you? Please describe.
6. How valuable is interaction with your peers/instructor in the online classroom? Please describe.
7. What is your definition of a learning community?
8. Did you experience a sense of learning community in the Guided Reading course? Please describe.
9. Approximately how many fellow colleagues had you met *in-person* prior to the Guided Reading Course? Please circle one option: Does this number include or not include the instructor?

APPENDIX E

SUMMARY OF RESEARCHER'S BACKGROUND

Education Background:

- B.A., Psychology and Sociology, Walsh University, Ohio
- MA.ED. Community Counseling, The University of Akron, Ohio
- ABD/Ph.D., Curricular and Instructional Studies with emphasis in Instructional Technology, The University of Akron, Ohio

Professional Work Experience/Skills

- Residence Life and Housing
- Clinic for Marriage and Family Therapy
- Academic Advising
- Community College - Steps to Success Retention Program
- Adult Learners
- College Admissions
- Career Development
- Grant development
- Budget management
- Research/publication
- Writer/Editor
- Graduate outreach/program management
- Instructional technology/web-based course design
- Teaching, undergraduate and graduate levels

APPENDIX F

SAMPLE OF CODES ASSIGNED TO CONCEPTS IN THE DATA

The following represent a sampling of the open codes that were produced after analysis of the threaded discussion board text. The codes exist in patterns (seen as brief word descriptors below) as they represented the introduction and all subsequent modules. For each course, a sampling from each module is included below. For example, codes from the introduction prompt for each of the five courses appear first. These are followed by codes from Module 1A for each of the five courses, which are then followed by all subsequent modules. Note: a bolded cell denotes the end of the module.

Favorite season
No name given
No salutation
First name
Position
Professional experience
State mandates
Course expectations
Professional goals
Seeks help
Branch
Reach out
Emoticon
Signs name
Salutation
Name
Position

Course expectations
Professional goals
Name
Position
Know colleagues
Lifelong learners
Excited, emoticon
Listening
“Need to know more”
Expectation
Salutation
Name
Professional goals
Name
Position
Engage in conversation
Course expectations

Pleasant
Name
Position
Excited, emoticon
Name
Position
Educational background
Excited – emotion
Course expectations
Seeks others to relate to
Technology
Positive attitude
Online experience
Name
Personal information
Education

Professional background
Online experience
SIRI experience
Name
Professional background
Years experience
Educational background
Name
Location
Technology
Mistake – newness
Employment
Humor, self deprecation
Branch
Relate
In good company
Humor
Well-wishes
Name
Professional development
Eager
Familiarity with content
Anyone else?
Branch
Use of 1 st name to reply
We
Relate to colleagues
Relate to content
Eager
SIRI experience
Online experience
Salutation
Name
Professional experience
Personal background
Educational

experience
Technology
Anxious – emotion
Evidences listening
Relates to peers
Salutation
Name
Educational background
Professional location
Professional background – current position
Branch with first name
Reaching out
Welcome to new member
Hobbies
Professional background, location
Hobbies
Salutation
Online experience
Branch to first name
Relating to peer
Positive
Supportive
Reaching out
Branch – welcoming
Hobbies
Humor
Experienced user
Technology problem
“I think GR is”
“I admire”
Professional challenge
“My concerns are”
Professional challenge
“I believe GR”
“Want to try”

Professional challenge “is what worries me”
“I need to”
“I want to”
Benefit students
Describe past experience
Professional challenge: “a major stumbling block”
Professional courtesy: apologetic misplacement of posting
Use of emoticons
Course logistics
Use of analogy to make a point “swimming against the stream” (to figure it all out)
“I think GR is”
Provides definition
Professional goal
SIRI experience
“I have a long way to go”
‘I have been overwhelmed trying to fit everything in
Emotion – ‘overwhelmed’
‘Have not used’
Use of example
Reward/gratification in student response
“I really related to what you said about..”
Past professional experience
“I have found”
“I need to”

“I find that”
Perhaps – wonders aloud
“I do not know enough yet”
“The jury is out”
Provides definition
“Used it in the past”
Listening without branching: “As name of student said...”
“What confuses me...”
Perhaps...wonders aloud
“I think that the “
“I believe”
“I am still not proficient at getting all of these parts to work together.”
“I am still working at it and I do try to use these methods...”
Links to outside resource
Use of analogy (hot pancake breakfast)
“That is how I feel, overwhelmed at times.”
Signs off with full name
Technology issue: I am trying this again; my first message seems to be lost in cyberspace....”
“My perception is..”
“I do believe I do GR to a certain extent...”
Weakness – poor

readers fall between cracks
“I think GR is a ...”
Speaks from experience
“Not yet found the perfect way to teach”
Professional challenge – limited resources
Professional experience
Describe
Discuss
Describe
Give example
Idea sharing
Resources available
Idea sharing
Explain
Elaborate
SIRI experience
“I have used it”
Describes GR techniques used in class
“Has changed over time”
“The goal I have for myself”
“Not to be so scattered”
“Seems unmanageable and time consuming”
“I feel”
“My belief is”
Describe
Describe
Idea sharing
Use of example
Definition based on former experience (before SIRI)

“I still have a lot to learn”
Altered concept of term
Eager to learn more
Course expectations (specific topics wants help with)
Elaborating
Idea sharing from experience
“I feel that GR”
“I find it difficult to”
Technology problem – computer not working
New to subject
Uncertain
Questions self
Seeks assurance
Professional challenge
I messages
Experience with course topic
Definition
Description
Professional challenge
Personal experience
Need to know
Professional experience with topic
Professional challenge
Reference to text
Eager
Reference to sources
“Our” job – inclusive language
“Limited experience”
New to topic
‘In my opinion’
Professional

experience with topic
Professional challenge
Enthusiastic
Humor
Professional challenge
Professional experience with topic
Description of use
‘Just learning about’
Beliefs
Professional challenge
‘Intimidates me’
“Look forward”
“Yet to use”
“Will read on”
Professional challenge ‘I also find it difficult’
Professional experience with topic ‘I have discovered’
Description
“Appears to be” (references course topic)
Professional use
“Intimidated”
Asks questions of peers
‘To me’ gives opinion of subject matter
‘I have experimented’
Professional experience
Professional challenge
Professional experience
Information sharing
‘I feel’
Elaborative, articulate

Professional challenge
Use of analogy
‘I feel that GR is...’
‘Trying to figure this all out’
Professional use
“I think GR is”
“Tried to use strategies”
Professional goal
“I have a long way to go”
“I really believe”
“I think with GR...”
Need to gain confidence
Professional goal ‘I hope to’
‘I really related to what you said’
Professional experience
“I do not know enough yet...”
“I really believe”
“We” – reference to teachers as a profession
Professional challenge
Professional goal: “hoping that one of these days I will feel that I am doing it right and will feel comfortable doing what I do.”
“I hope to...”
Description
ALL CAPS for emphasis
“I also think”
“I thought at first that

GR was...”
Professional challenge: “I find it difficult to”
Uses professional experience
Analysis
Judgment
professional opinion
“I do not think it is the ‘one way’
Difficult challenge
Advocates techniques (GR)
Speaks from experience
Self-appraisal: “I feel inadequate”
“I worry that”
Poses question to peers
Technology: “posting this again, sorry”
Professional– apology
“After reading ...I believe much differently...”
I like the variety shown in the videos”
“I really want to make GR work in my class”
Professional challenge-organization of it all
“I think”
“I have found that”
“I really like”
“I am truly amazed at”
“I also feel”
Poses 2 questions
“Frankly, I think”
Succinct statements in first post

Lists brief definition
Professional challenge
Succinct statements
Lists brief definition
Professional challenge
Evidence of listening “ I also agree”
Succinctly lists definition
Does not use complete sentences
Questioning (poses several Q’s to peers)
Define
Comprehension
Metacognition (awareness of self-imposed goals) “I have trouble...”
Reference to source
Poses Q to peers
Idea sharing – what I use/do
“Starting a program scares me”
“Don’t know where to begin”
Plea for “Help!”
I think GR is a...
Reference to resource
Analysis of self
More questions after reading/learning more
Poses Q to peers
Professional challenge
I think
Personal connections – link
Professional experience

Note: articulate and intelligent commentary
Sourcing
Eager “ I look forward to...”
Professional goals stated “I hope to be able to...”
“My first comment...”
After the reading...I understand better...”
Poses question
Metacognition: “I also did not realize until after I read...”
“..Been trying to use..”
“Still uncertain if I am doing it in the most beneficial way”
“I think” (opinion)
Professional challenge
Lists succinctly; incomplete sentences
Idea sharing
Thinking about implementing
Professional goals
I think
References course material
Branch – answering
I have experienced...
Questioning
Gratitude: “enjoyed the wonderful comments and ideas posted”
Links to resource
Provides examples and explanation

Goal: “I would very much like to”
“I feel overwhelmed”
Listening, “Many have wondered”
Questioning, “I was wondering if others...”
Desire to learn more from peers: “I’d be interested in hearing how some of” Cut off due to technology problems
Use of * to separate thoughts
“From my limited perspective”
Numeration to organize thoughts (1, 2,) elaboration
Opinion: “the most salient to me”
Agreement with peer
Definition
Description
Inexperience: “I don’t teach reading so...”
Signs off with full name
“I have found”
“Limited perspective”
Speaks from experience “At my school”
“My perspective is somewhat different”
“I believe”
“I can also see the other side”
Comprehension
Positive demeanor
“I don’t have much

experience with GR either..."
Evidence of listening
"I do not see...I see only opportunities"
Questioning
Almost no thought or effort put into response
Speaks from experience
"I am trying to do GR the right way..."
"I see the ..."
Comprehension: Associate

Comprehension: associate
Analysis: relate
Identify
Use of intro sentence
Idea sharing based on experience (relate)
Use of first, second for thought clarity
Questioning: "I'm wondering" as relates to professional challenge
Describes
Questioning – asks in ALL CAPS
Branch – "Is there a series..."
Branch – interaction
Answering
Emoticon
Reaches out: Can someone help me here?
Disclosure: panic attacks
Analysis – break

down
Professional pressure
"I felt successful"
Resource
Relates, connects, links
Uses humor
"I also think"
"We" (refers to group as profession)
Professional courtesy, "I know this is long, sorry."
Synthesis: compile, revise
BRANCH to first name; poses questions to peers for clarification on a prior statement [Peer Guidance]
BRANCH to a first name, answers peer
Comprehension, explain
"As I write this, I am struggling with it"
Listening: I enjoyed reading all your comments..."
I also want to know
"My question is..."
I think
BRANCH no first name, I agree
Signs off with first and last name
Definition, description
Use of humor
Questions
"I was excited to see"
"I like the idea of"
visual impact

"I agree with"
Self-appraisal: I've always felt a piece missing
"I guess it's the..."
"I have noticed
"I especially like the idea of..."
I agree that
"Help me to guide them to use strategies and skills that work"
Summarizes: It seems that everyone finds.
Application: apply, modify
Self-appraisal: I tried but had a hard time
Goals: Hoping to gain strategies
"I found it interesting"
Self-appraisal: I'm missing what is most important...
Use of "we" as profession
Associate, discuss
Agreement
Comprehension: associate, describe
"I liked how they..."
"I was thrilled to hear" Emotion
Sense: hearing
Seeks input: "I want to know how to fit them into my busy work schedule"
Guilt: My problem with this is...
Seeks reassurance from peers
"I also like the idea

of.”
Technology: streaming issue
Self-appraisal: analysis I was missing out on the one-on-one assessment
“I listened carefully” (HEARING)
Idea generating
Poses questions to peers for clarification of ideas gained
“What I found interesting”
I was surprised to hear (sense)
I wonder what this program is?
I was also happy to see
I also like the idea of
I did this (tried it before) it worked
Signs off with first and last name
I enjoyed listening
I like the idea of...
I'd like to try...
I would like to have more time to do...
I'd like to know more...
I agree
“I will be using..”
Seeks peer guidance: “I’m looking for Suggestions that relate to...”
Video brought reassurance (“relieved”)
Sets specific goal: “I

would like to increase my [idea from video]
Validation
“A great idea...”
“I also think it would be beneficial to...”
“I have yet to find a doable way of using [this technique]”
“This is one of MY major goals...”
I also like the idea of...
Technology: frustrated w/ videos (exasperated)
I like the idea of...
With GR, I think you need to...
I’m concerned that I wouldn’t have the time to...
I failed to see...but I’d like to give the
I tried this idea last year and it seemed to work
Assessment – “this didn’t prove successful”
Metacognitive
Idea sharing
BRANCH – “Please explain what you mean by”
Seeks clarification
Assessment – that was successful although I think that next year I will need to...”
Reassurance
“I think I need to do a better job...”

“I’m always disappointed”
Seeks help – “I hope someone might suggest”
“Holding me back from fully implementing GR”
Like to hear – video mentors’ ideas – this is how it will help
Questioning – several about how to implement
Reference to text books – reassurance
“I have wanted to do GR”
Gains confidence “We’ll see about this year!”
Professional challenge – my first year doing GR
“The biggest obstacles”
Metacognition
“This is the piece I had difficulty with”
“I liked Connie’s idea (video mentor), but I would find it hard to...”
“I wonder” – questions
Reference to book outside course listing
BRANCH to 1 st name – I enjoyed that book too
“I have been chicken...”
Listening to others’

“What if” idea generation to help others
Working toward implementation level
“I have read all your comments” (listening theme)
“Getting a feel for the management from our discussions”
Self-appraisal
Technology problem –pdf file
I trust your advice, “I am going to try...that a couple of you have mentioned”
Technology – pdf files giving me problems too listening
Links to outside resource
Idea sharing, with hyper link
“I have had aspirations to do GR”
“Seemed overwhelming” Emotion
Technology is frustrating
Class is helpful
“I can’t share what’s worked for me – yet!” Optimistic
Shares two references with hyperlink
Professional courtesy – apologetic for being late
Self-assessment (what’s working; what’s not)

Idea generating (refers to course resources)
“I presently put”
“I will modify”
“I still struggle with”
Professional challenge
“I have a hard time”
“I will have to come up with”
Problem identification (theme)
Explanation – here’s what I do (theme)
“I use”, “I guide”
“Still have much to learn”
“Put into practice”
“Course has helped me...to put it altogether”
“Plan to implement soon”
Technology reference – can’t click on ...
Technology – same problem as peer
“I like the” [checklist idea]
Assessment – programmatic
Use of CAPS for emphasis
Explanation –what I do
Questioning – multiple – what do you do?
Emotion – overwhelmed
“I have to admit” – self-assessment
Resource referral

Admiration for book author
Technology problem – opening forms
Explanation – what I do
After reading, “I may need to rethink”
“I worry about..holding it all together”
“I feel stretched”
“I will need to begin small and do one thing at a time”
Assessment
Multiple questions to peers
“Would love to find out more!”
“Hope this helps or gives you some ideas”
BRANCH to 1 st name
Gratitude to others’ for their ideas
“It has me thinking!”
“It’s nice to know others” can make it work
BRANCH to 1 st name
Here’s what I do – explanation (theme)
Answering – responding to peer
“I hope this helps”
Questioning – “Any ideas for me??”
Assessment – I am comfortable with
“I will incorporate”
Planning to use them
Here’s what I do (explanation)
“I would welcome

suggestions”
Evaluative – “this session has helped me a lot...helped keep me on focus” (theme: reflective practice)
Reference to course resource
“Would love to try”
“I guess the best I can do for now is...”
“I am not as fortunate”
Listening: “So as we all have said...” (summary)
“I intend to take baby steps (as one of my esteemed colleagues recommended)”
Gratitude to peers
“My biggest problem”
“I wish I could see”
Self-appraisal “I feel I still have much to learn”
“I am just now starting to put it into practice”
“This course has helped me a lot to put it altogether”
“I hope I can run this better in my classroom”
“Loved reading posts”
Appraisal – I get this but still struggle with that
“I should implement”
“I am also going to

try”
“I need to start a little at a time”
“Any suggestions I would rally appreciate????” (seeks help, theme)
“What I realize is”
Enjoyed the reading
Explanation
CAPS for emphasis
“I do some GR but I really would like to start next year off using...”
I realize...
“I am hoping with all this new information and the ideas the other teacher have shared, that I too can successfully use GR”
“I have a lot more confidence”
Explanation – detailed
Self-assessment – “very few troubles”
CAPS for emphasis
Self-assessment “I feel comfortable”
GR is new to me
After reading responses, more ideas
My concern is...questioning to peers for advice on how to handle
“So excited to gather and implement so many new ideas from this class”
Listening – referral to peer by name and

what they wrote
Technology – messages get cut
Branch – please share
Technology problem – access to lesson frameworks
Explanation
“My challenge continues to be” (theme)
“Did not go well”
Questioning – how to organize GR for K
Branch to 1 st name
Try doing this
I think it is very good for them
I wonder if
PROBLEM Solving
I also do a lot of...
gives advice
Answering
Branch – have the same problem you do implementing this
Branch – “I agree with you...the biggest problem is...”
“My difficulty is...”
“I do a little GR”
Advice
Experience
Explanation
Branch – relates to problems
“Takes a lot of training...” expectations
“Are there any ideas for keeping....”
“My largest issue”
Branch – to 1 st name

Had same problem
Advice
What worked for me
What you might try doing differently
Problem identification
“This really helped”
Idea-sharing in problem-solving venue (main theme)
Branch “I like your adaptations”
“I am trying to fine-tune my management piece”
“Would like some suggestions for what to do when...”
Want to make certain
“I am really struggling with...”
Relate to video mentor, “Like Diane...”
I have used...I do this...
Anxious – emotion
“I want to try more of this...” (application theme)
“My biggest problem or issue is...”
Explanation
Idea-sharing based on success
Suggestions
What’s working well
Evaluative
Programmatic assessment
Branch – I think it’s great that your school does that”
“I like to use”

Evaluative
“I wish I could make this a more interesting...”
“Are there books on...?”
“Here’s my problem...”
Questioning-need help
“What do I do?”
Evaluative: “one of the most successful lessons I used last year...”
Evaluative of self: “I had enough time to interact...we needed several days to complete”
Professional courtesy
Application, use
Benefits of use
Linking
Global reference to current event: “It was good for making connections, especially after Sept. 11. Great tie in to science and social studies.”
Reference to prior module to answer question of peer
Evaluative “A great book for teaching visualization”
Comprehension – describe
Analysis, “this particular series helpful”
Describe

Application, use
What I do, how I do it
Analysis, point out
Analysis, point out “It really increases self-confidence”
Evaluative (techniques)
Idea sharing
External reference, sourcing
“This lesson is good for sequencing...”
Links to techniques used in reading
Provides step-by-step lesson plan
Branch: gratitude for ideas “some new innovative ways to reinforce sequencing skills”
“I will try this”
Integration of other subjects (social studies)
Explanation of lesson plan execution
Idea sharing
“To incorporate writing I have my...”
Provides example: “To end the lesson we”
Assessment – “my students love this lesson, they are very interested in how the Amish live...”
Branch, relates to favorite author of another peer
“One of the best!”
Branch, “I have them

too but this is a new idea on their use. ...”
Gratitude – thanks!
Synthesis-modification
“I will use this next fall!”
Elaboration on how its used including techniques
Evaluation: concludes, interprets. “In making so many connections to their lives, students really enjoy and relate to these two characters and can’t wait to read other books.”
Evaluate, conclude: “It is most important at the beginning to use books with repetitive phrasing.”
Guidance seeking: “What do you all think?”
Evaluate, conclude: “These books are great for sequencing, comparing to other stories by the same author...” (techniques)
Analysis, summarize: “I use these books to compare...we talk a lot about characters and their behaviors. We sequence, predict, and even tell our own versions.”
“As a pre-reading activity (incorporating

their learning, expressing techniques used)
Evaluative, “a great way to build and reinforce vocabulary”
“A very multi-level activity, too, since each student can..”
Evidence of listening, relates to peer “Well [name] captured some of my thoughts”
Evaluation, appraise: “ Dr. Seuss books are engaging, even with a limited vocabulary.”
Evaluative: “I especially like”
Application, use
Illustrate, “While the parents are sitting at the table, I bring the students to the carpet and begin by taking a picture walk of the book, then we read....Then we...The children return...I demonstrate”
Parent involvement
Idea sharing
Summarizes, groups (books together)
Evaluate, appraise: “Her books work well with things that we are doing in science, or are great to base a theme around.”
Analysis, select “A great way to integrate the subjects!”
Listening, “I use most

of the books you all have talked about...”
Jovial, pokes fun at self
Evaluate, appraise “Poetry is great to work...it is short..it lends itself well to strategy lessons.”
Invites feedback
Positive feedback
Invites feedback
Provides feedback
Here’s what I like
Asks questions to clarify how one would incorporate the lesson plan
Invites feedback
“It’s been real!”
Addresses professor
Articulated feedback
Assignment as attachment
Assignment within text
Numerous here t is
Numerous “See Attached”
Uses first name in branch
Nearly the entire class does not use the attachment feature
Introduces attachment
Farewell
Solicits help
“Have not heard any feedback....”
Patient, courteous
Technology
“Anyone else?”
Unable to view
Extreme frustration

with technology
Address colleague by name
Correction to file
Closure – have a great summer
Awaiting response/feedback
Polite, courteous
Diligent
Apologetic
Courteous
Taking care of business
Relief
Upset with technology
Unfamiliarity with technology/course platform
Reaches out for help
“Am I the only one?”
“Can someone help?”
Acknowledgment of frustration
Calm but struggling
Very formal script
Technology issues
Uses first name in branch
Helpful suggestions
Branch
Humor with technology
Witty, humorous, pokes fun at self.
Personal disclosure
Application to learning
Collegial
Metacognition
Mechanical messages
Relief
Closure

Relief
Goodbye

APPENDIX G

RECONSTRUCTION OF THE DATA: INTRODUCTION PROMPT

Sample 1

Open Coding Emergent Themes

This is who I am (lists first and/or last name)

This is my professional background

- Grade taught, location, district, building

- Years experience

- Educational background

- Prior course topic experience (e.g., Summer Institute for Reading Intervention)

- Limited experience expressed

- Professional accomplishment (e.g., grant)

- Course expectations

Professional Goals: eagerness to learn more, gain insight, more strategies, how to's

- I am a lifelong learner and I want to be better at my job

- I am interested in others' experience

Experience with technology

- Finding one's way (a course management issue – how to use WebCT)

- Emotion expressed (e.g., frustration with technology)

- Expression of level of comfortability with technology

Affect - Eagerness to get started; excited.

Communication commences

- Reaching out to peers (e.g., look forward to reading intros), "Anyone else?"

- Input is appreciated and welcomed ("I look forward to talking with you all.")

- Nice to have a seasoned pro in the midst to learn from

- Acknowledgement of Listening (e.g., thanks for listening)

- Personal Gratitude

- Acknowledgement of professor

- Recognition of peer

- Listening

Axial Coding (when, where, why, how and with what consequences)

Overall, the posts were several sentences in length, used complete sentences, and incorporated a variety of information. Many first prompts were several paragraphs in length. Use of CAPS and bulleted numeration; emoticon, salutation; writes in complete sentences; tone is pleasant, good humor.

RECONSTRUCTION OF THE DATA: INTRODUCTION PROMPT

Sample 2

Open Coding Emergent Themes

This is who I am

This is my professional background

This is why I am here (professional development)

I am a lifelong learner and I want to be better at my job

Eager to learn more

My concerns center on the course topic/course expectations

Experience with technology – former, problems, online, frustration with

Experience with course subject material (e.g., SIRI)

I am interested in others' experiences

Communication commences

Evidence of listening

Relates to peers

Reaching out to peers – seeks input

Reaches out to instructor (with gratitude for helping)

Acknowledges peer/instructor

Identification of other course members (hey, I recognize your name)

Inclusive language: "Like the rest of you..."

Personal Disclosure

Affect: anxious, enthusiastic, frustration (technology), not feeling in control

Axial Coding (when, where, why, how and with what consequences)

In the initial stages of written discourse – in most instances within one week of commencement of course. The introduction phenomenon occurred as a result of an instructor-driven prompt which asked participants to share a bit about themselves.

Desire to learn more. Participants expressed themselves in a variety of ways: Posts were several sentences in length each; used complete sentences; incorporated a variety of varying types of information; Professional courtesy; use of CAPS; use of numeration; answers prompt with professional opinion; emoticon; salutation; positive; humorous.

RECONSTRUCTION OF THE DATA: MODULE 1A AND 1B

Sample 3

Open Coding Emergent Themes

Inexperience with subject material/limited experience noted

(i.e., I have limited experience; I am just learning; I have yet to use)

I don't teach...

Opinions, knowledge expressed

I messages (i.e., I have found; I don't like)

In my opinion

Enthusiasm for subject material

Rewards of seeing your teaching work with students – they improve

Agreement stated

Course goals related to subject material (I need to know more about...)

Challenges with course topic noted (perceived)

Information/Idea sharing – uses description

Techniques (flexible grouping, biographies)

Professional challenges

Concerns related to course subject material

Personal disclosure of challenges met (use of emotion) (What intimidates me..)

Eagerness to learn more about subject (I look forward to learning more)

Refers to citation/reference

Professional responsibility

Use of inclusive language (e.g., that is “our” job after all!)

Personal discovery – will keep reading to learn more

Axial Coding (when, where, why, how and with what consequences)

Introduction sentence to segue answer

Answers the question within first lead-in sentence (e.g., The main advantages are...)

Organization of response

First, second, third

Numeration: 1), 2), 3)

Use of complete sentences (although there are a few examples where this is not the case)

Describes or lists the professional challenge felt

Use of “I messages” as a way of self-expression

Talks candidly about one's experience or lack thereof

Uses a preface to contextualize situation prior to answering prompt.

Speak of experience in actual classroom; offers examples

Most statements at comprehension level

RECONSTRUCTION OF THE DATA: MODULE 1A AND 1B

Sample 4

Open Coding Emergent Themes

Inexperience with subject material (most do not have experience)

Noted particularly within one one-sentence response that says I agree

I don't really know much about subject matter

Idea generating, impressions, reaction to...

Expressions of ideas, opinions, thoughts

Evidence of listening without direct reference to specific person(s)

Technology

Video problems, video clips,

"Values" the "seeing", being able to watch other teachers in action

Self-Appraisal

Expression of goals

I hope to...

I dream of...

Refers to video mentors by name

Communication

Inclusive language; We

Would like to try...

Any suggestions?

Problem-solving

Branch – relates to peer; answers question

Poses questions to peers

"I can't wait to learn more!"

Affect: enthusiastic, excited, eager

Axial Coding (when, where, why, how and with what consequences)

Well articulated responses, at times exceptional

Organizational features: numerations (to list); bullets to order-, -, -,

A lot of modeling in the responses is overtly represented

Use of salutation to greet peers

Signs off with well-wishes and first name; signs off with full name; first name, last initial

Use of a preface to contextualize (situate) the response

Those with the least experience seem to have the least to say (observation)

One response is minimal in words, grammar, punctuation, very sloppy

RECONSTRUCTION OF THE DATA: MODULE 2

Sample 5

Open Coding Emergent Themes

Expression of agreement (or other reaction) to model teachers' knowledge/instruction

Discuss, describe opinions and observations, viewpoints, thoughts related to subject matter at hand, ideas gleaned, perceptions

Communicates with Peers

Poses question(s) to peers (some questions promote advanced levels of critical thinking as they seek to help the participant integrate new methods into practice.) What is it? Tell me more. How could I incorporate?

Uses first names to relate to peers' previous discussion.

Uses first names of video mentors in discussion.

Evidence of listening, even without direct branching (I was also surprised...)

Direct branching to peer through use of first name (Dear...):

Wondering/thinking aloud (perhaps as a way to question peers)

Idea sharing

Metacognition (I wonder if I...); self-awareness

Professional challenges experienced

Professional goals expressed (I wish I could)

Reaction

How to make it work in own environment?

Thinking about how one would put it into action.

Expresses value in that there is agreement with video mentors but how does one make this work?

Axial Coding: when, where, why, how, and with what consequences

Use of I messages

Use of CAPS for emphasis, some humor

Use of multiple ???????? to emphasize surprise/reaction

Signs off with first name

Comprehension: describe, discuss, explain ideas to peers

Application: predict

Analysis: analyze

Viewing of model teachers enhanced metacognition (self-awareness) of how the teachers' saw themselves implementing these ideas. Left many wondering how does one do it all?

RECONSTRUCTION OF THE DATA: MODULE 2

Sample 6

Open Coding Emergent Themes

Professional expectations/goals from videos: (e.g., This is what I am looking for...)

Used summaries as comparative way to describe each video mentor

Discussion, agreement, viewpoints, impressions, gives opinion

Generation of ideas to use/share with peers at own district

Videos promoted reassurance with teacher who had tried many of the mentors' ideas

Communication with peers:

 Use of inclusive language: (we)

 Poses question to peers

 Branch to colleague

 Evidence of listening (I am like a lot of you)

Video as instructional technique:

 Value in being able to "see" and "hear" other teachers in action.

Metacognition/self-awareness of individual strengths/weaknesses/ evaluate self

Problems with technology – see but not hear; can't see so great but can hear

Professional challenge/Professional goals

Professional admiration for video mentors expressed

Professional courtesy expressed (apologetic for personal absence)

Here is what I took from each mentor

Here is what I will try to use

There are questions that I still have

Participants move toward implementation stage

I don't want to just think about this, I want to do it.

I use some of this, can use more, will use more.

Problems with technology expressed factually and not with emotion.

Very self-reflective in written discourse.

"I will try this..."

Axial Coding: when, where, why, how, and with what consequences

I messages

Organized responses (lists each video mentor and summarizes/questions/ideas for use)

Use of succinct statements to summarize

Signs off with first and last name, signs off with first name

Point out select, differentiate, summarize, break down, distinguish.

"I can modify this activity and do with K as well", revise, reorganize

Reassurance gained from videos can be seen as validation.

RECONSTRUCTION OF THE DATA: MODULE 3

Sample 7

Open Coding Emergent Themes

Links to text; compliments resource books (assesses text book/adds hyperlink)

Note: About 4 participants share different references with class

I used...

Uses explanation to describe process, techniques used with focus on implementation and ideas to help others with/ Sharing of strategies is a primary venue

Reassurance (relates back to an idea from video); Refers to earlier module (video)

Restates course goals – I took this course to get more familiar with...

Professional Self-appraisal/Professional Challenge (self-assessments)

I think I need to, The key issue holding me back, I have been chicken to, etc...

I'm getting a feel for the management from our discussion and the readings...

Communicates with peers (dynamic discussion going on)

Online TALK

Direct branch (not to a name)

Seeks clarification as to what a prior post meant (Please explain)

Asks for guidance (I hope someone might suggest something to help....)

Poses question (or several) to peers

I wonder...

Branch to a first name

Agreement with peer in course

Evidence of LISTENING

What if...(Brainstorming out loud)

I have read all of your comments with great interest

Refers peers to resource found online (outside of class list)

Has anyone else...?

I am going to try what a couple of you have suggested

Are there any more 4th grade teachers

Implementation Professional goals

I have wanted to

Gaining confidence: I'm finding this information valuable; I think the course is going to give me the confidence to get it going this year; Optimistic that topic can be implemented (This is more realistic)

Axial Coding (when, where, why, how and with what consequences)

Use of Emoticon to express humor, I messages, Signs on with greeting (Hi), Signs off with first and last name, Use of exclamations for emphasis (!!!), Professional courtesy (apologetic for being late)

RECONSTRUCTION OF THE DATA: MODULE 3

Sample 8

Open Coding Emergent Themes

Discussion, idea sharing, opinion (everyone does this)

Relates using own professional experience, Professional experience as preface

Elaboration, ideas shared, strategies used

SIRI experience

What works, what doesn't (effectiveness)

Use of examples to illustrate points

Personal disclosure (familial "interference")

Professional challenge/Self-awareness (*reflection of own practice*)

I have become better...but am always searching for new ideas...

"...This is my dilemma...It is always a challenge..."

"I'm sure I did fine but there is always room for improvement!"

I found the system difficult to manage OR This has worked much better for me....

Overall, I still struggle with....OR My biggest trouble is....

Implementation/Goal Setting/Planning

My goal for this coming year is the ...

One activity I'd like to try this year...

Through this class and the readings that I've been doing, I am planning on...

I am going to try more centers this year...

My game plan for the fall is to use our reading series...I am also going to incorporate

Communicates with Peers

Solicits help; "If anyone has any ideas or tips, please share them!" Any ideas?

Asks question of self but seems posed for peers

Evidence of listening:

Responds to peer but not through a branch, and not to name

Direct branch to name with questions seeking elaboration.

I, too, am interested in learning more about...

"I am getting some good ideas from this *discussion*." (Acknowledgment)

Axial Coding (when, where, why, how and with what consequences)

Use of CAPS for emphasis, Use of quotation marks to "title a subject"; reference official word "center" or "group" Use of humor to express self

Use of ...to connect thoughts

Signs off with first name and last name

RECONSTRUCTION OF THE DATA: MODULE 4

Sample 9

Open Coding Emergent Themes

Idea sharing, opinions, fact sharing

Beyond responding to prompt

- How it was incorporated into classroom

- How it was beneficial to students

- How it relates to other subjects

- Use of description to answer the prompt

Speaks to strategies employed/describes usage/explains usage (articulate)

Evaluative: what worked

How it is used, benefits to its use

Relates to direct experience

Contextualize the answer

Evaluative of self in professional light

Links

Global reference to aid integration

Communicates with peers

- Through discussion

- Answers peer: Relates to prior module to reference “Someone in this class asked about....” (answers without direct reply).

- Listening

Axial Coding (when, where, why, how and with what consequences)

Uses complete sentences

Answers the question through restatement of the question in intro sentence

I messages to communicate

Answers in paragraphs (one lengthy or several smaller ones)

Professional courtesy: Apologetic

RECONSTRUCTION OF THE DATA: MODULE 4

Sample 10

Open Coding Emergent Themes

Selects text and describes its use in classroom.

Select the text **“selecting”**

Description of techniques/strategies used (how it is incorporated).

Illustration of how it is used.

Makes judgment related to text usage.

Integration of lesson plan into discussion response.

Communicates with Peers

Direct reply (Branch) to thank for the ideas “I will try this...”

Evidence of listening even without branching.

Multiple branching to one participant (from 3 others)

Looks to peers for guidance (What does everyone else think?)

Relates to peer

LISTENING: [name of peer] captured some of my thoughts...

Implementation

I will use this next fall; I will try this; Modification of ideas

Integration to other subjects

Illustrates, points out; use of techniques

Evaluation, recommendation

Axial Coding (when, where, why, how and with what consequences)

Signs off with first and last names; signs off with first name (although most do NOT)

Uses complete sentences, lengthy paragraphs or several paragraphs.

Offers thoughtful responses and descriptions.

Pokes fun at self; jovial.

Memo: Overall, this group selected a text and described its usage. Many offered an overall appraisal of why this text or author is important as it relates to specific techniques. The participants are sharing with one another through vivid levels of critical thinking even though they may not be directly interacting with one another. This is part of my revised online GROUP Development model – it’s a way of communicating, not the volume of communications between members, as this is where I think much of the original research saw.

RECONSTRUCTION OF THE DATA: MODULE 5A and 5B

Sample 11

Open Coding Emergent Themes

Personal disclosure (illness in family)

References own learning (application of learning, integration)

Collegial

Eager to share with peers

Uses attachment feature

Signs off with first and last name***

Title of lesson plan given

How plan is used

Makes comment/Recommends*****

Reference to task completion/expressions of relief

“All done!”

“Here is is, finally done.”

“Here is it finally. It has been a rough couple of weeks!”

Closure:

Thanks all, this has been fun!

One class down, 2 to go!

Comments are short and to the point/”Announcements”

See attached

Final Plan attached

Here it is. Finally done.

Axial Coding (when, where, why, how and with what consequences)

Most do not sign off with name

Most are not complete sentences

RECONSTRUCTION OF THE DATA: MODULE 5A and 5B

Sample 12

Open Coding Emergent Themes

Technology Issues

Frustration with attachment feature

Frustration with time to download

Large affect coming through “Extremely frustrated”; I am very upset tonight”

References uncertainty with being able to use the technology to upload**

I don’t think I have the hang of this.

I am going to try to attach my lesson plan....

Professional courtesy: “Sorry, I’m trying.”

Communication

Solicits help from peers

Any help on attaching lessons plans would be greatly appreciated!

Only two days left to finish and my charts did not make it to [name of instructor]

What am I doing wrong? I now wish I hadn’t signed up for the two other online courses!!! (desperation)

Did anyone else have a problem besides me and ___?

Salutation/greeting

Introduction of lesson plan subject area

Speaks directly to instructor

Dear Dr. [name of instructor].

Having problems but still trying.

I have not heard anything; looking for feedback from instructor/student

Instructor response:

Patient, kind, reassuring, hang in there; works with technology; provides alternatives.

Clarification: Participants ask questions about course assignments

Uses attachment feature

Includes lesson plan in post, not as an attachment

Farewell

Signs off with first and/or last name

Axial Coding (when, where, why, how and with what consequences)

Notes: this course section has struggled tremendously with the homework attachment. One student seemed particularly exasperated. There was little to no interaction other than replies to the folks that needed help. The talk is over. Posts are using complete sentences and are polite in tone (even those who are frustrated are still polite).

APPENDIX H

GREETING STAGE INDICATORS: STAGE I

The following indicators were used during selective coding to determine “fit” within the Greeting Stage (I) of Online GROUP Development. If the written discourse was most similar to the following indicators, it was labeled as “Greeting Stage.”

Indicators of the Greeting Stage

Primarily centered on introduction of self (first and/or last name)

Professional work background/current position

Course goals (professional goals)

Self-appraisal

Personal (familial, hobbies, likes)

Technology issues

Evidence of online listening, including replies/branches

Online talk: relational, supportive

Affective: enthusiastic, eager, warm, apprehensive, nervous

RELATING STAGE INDICATORS: STAGE II

The following indicators were used during selective coding to determine “fit” within the Relating Stage (II) of Online GROUP Development. If the written discourse (a single post in its entirety) was most similar to the following indicators, it was labeled as “Relating Stage.”

Indicators of the Relating Stage

- First post directly related to subject content area (introductory level)
- Definition of topic according to one’s familiarity with subject matter
- Relates to professional experience with course topic (experienced/inexperienced)
- Identification of points of concern with topic (introductory/broad sense)
- Evidences knowledge (or lack there of) with topic
- May evidence comprehension of topic
- Goals expressed in a broad sense (e.g., gain, outcomes)
- Self-appraisal in relation to course content
- Affective: Enthusiastic to learn more
- Evidence of online listening including replies/branches
- Evidence of online talk including collegiality
- Technology issues may surface but are unlikely

OPERATING STAGE INDICATORS: STAGE III

The following indicators were used during selective coding to determine “fit” within the Operating Stage (III) of Online GROUP Development. If the written discourse was most similar to the following indicators, it was labeled as “Operating Stage.”

Indicators of the Operating Stage

Reacts or responds to incoming data, knowledge, or exposure to new material

Active cognitive processing of new material

Connects or links to course text(s) or other instructional materials

Connects or links to resources outside of those presented within course

Recognition of ideas generated as a result of instructional materials

May results in altered concept of what the course topic really is

Problem solving emphasis

Functional level as group (seek each other out)

Solicits assistance from peers through questions or “wondering aloud”

Evidences comprehension of topic, application

Technology issues relevant (introduction of video models)

Online dialogue is conversational in nature

UNIFYING STAGE INDICATORS: STAGE IV

The following indicators were used during selective coding to determine “fit” within the Unifying Stage (stage IV) of Online GROUP Development. If the written discourse was most similar to some of the following indicators, it was labeled “Unifying Stage.”

Indicators of the Unifying Stage

Emphasis on implementation of new material, putting it into practice

Reference to putting it [course material] together; shares ideas

Connects to/integrates techniques or strategies used

Future-oriented (What I will do in the future)

Gains confidence in ability to implement new course information/prepared

Sets goals that are more specific vs. generic/broad

Online dialogue is conversational in nature/collegial

Cognitive complexity

Selects, may include explanations (minimal to elaborate) of why/how strategies can be used

Application, use, illustrate

Evaluate, appraise, recommend

Teamwork (appreciation theme, thank you, gratitude, great ideas, questions others)

Technology issues unlikely

PARTING STAGE INDICATORS – STAGE V

The following indicators were used during selective coding to determine “fit” within the Product Stage (stage V) of Online GROUP Development. If the written discourse was most similar to the following indicators, it was labeled “Parting Stage.”

Indicators of the Product Stage

Emphasis on final product or course assignment/task-centered

Cognitive complexity

Use judgment/evaluation to make selections of appropriate material

Selects, may include explanations (minimal to elaborate) of why/how used

Application, use, illustrate

Evaluate, appraise, recommend, conclude

Online talk continues – seek guidance, help, peer critique, but less dialogic

Closure/Course coming to an end

Farewell/Goodbye

Technology issues resurfaced (attachment feature)

APPENDIX I

DISCUSSION BOARD PROMPTS FOR GUIDED READING COURSES

Introduction Online Discussion: Meet Your Colleagues	1. Think about what you would like your colleagues to know about you. Consider your teaching experience and interests. Think also about what you might want to know about your colleagues. 2. Go to the threaded discussion and post information about yourself that you want to share with your colleagues. Read about others and ask additional questions if you would like to build on this “getting to know each other” aspect of the introduction to this course before we get into course content through the following five modules.
Module 1A: Before Reading- Perceptions of Guided Reading	Think about and then respond to the following issue: 1. What are your ideas about guided reading at this point in time? Think about both your beliefs and practices. Click here to send your response to the threaded discussion.
Module 1B: After Reading: Advantages & Disadvan- tages of Approaches	Think about the advantages and the disadvantages of the various approaches to guided reading. Consider your own experiences as well as the reading and viewing you have done. 1. Post at least two comments and one question on the threaded discussion board that adds to the thinking and discussion of the advantages and disadvantages of the varying approaches to reading.
Module 2A: Characteris- tics of Good Readers	Think about the students you have in your classroom and the abilities they have as readers. What can they do? What are your expectations of them as readers? You may want to take a day to step back and observe, perhaps taking anecdotal notes of your observations. 1. Now you are going to discuss what you consider to be characteristics of readers at your grade level. Go to the online discussion board for your particular grade level. Post at least two comments and one question as you “chat” with other teachers of the same grade level and work to create a list of characteristics of good readers. Click here to post your discussion thread.

Module 2B: Reaction to Video Segments	1. Start your thinking by listening to what Joe, Connie, Diane and Terry say about assessment in their classrooms. 2. Post a brief reaction noting something that you found interesting, surprising or confusing as you listened to the model teachers. Click here to post your thoughts to the threaded discussion titled, "Module 2 - Reaction to Video Segments on Assessment."
Module 3: Manage- ment Issues for Guided Reading	At this point continue to raise and ask questions with your online colleagues. Go to the discussion board and engage in threaded discussion about how to manage guided reading. Tell what has worked for you and find out how it has worked for others. Click here to the threaded discussion.
Module 4: Favorite Texts	While there are many resources available to support the selection of texts for guided reading, perhaps the best ideas result from sharing with colleagues teaching children at the same level of reading development. Therefore, to complete the next activity, begin by reflecting on texts that you have used to elicit response from your readers. 1. Post the title, author, and description of a print text that you have used successfully with your readers on the Discussion Board. Briefly explain how you used it and with whom. Click here to post your responses to the discussion thread.
Module 5A/B: Online Activity: Develop & Share Lesson Plan	As you develop the plan, consult the Ohio Resource Center (ORC) rubric for Best Practice. It will provide guidelines for evaluating the lesson. Organize your plan in a format that best suits your needs. Be sure that you have included the following information: • Instructional Objective linked directly to an ELA standard and grade level indicator. Review your work for Module 2. • What assessments will you use for this lesson? See Module 2. • How will you develop your grouping for this lesson? Module 3. • What text will you choose? What is your rationale for choosing this text? Module 4. • What instructional activities will you use to prepare students before reading, to support their use of effective strategies during reading, and to deepen their understanding of textual meaning or processing skills after reading? Module 3. Post your completed assignment to your team discussion thread where it will be reviewed by your instructor and one assigned colleague. Click here to post your assignment to the discussion thread.

	You will also receive a lesson plan created by a colleague to read and review. Use the ORC rubric to offer feedback to your colleagues. Return the review to author and copy the instructor. Finally, consider the feedback you have received on your lesson. If necessary, make revisions that you feel would strengthen it. Now resubmit your lesson to your instructor who will send it to ORC for possible posting on its website.
--	--