Collaborative Reflection: Supporting One Practitioner’s
Development of Online Learning Communities

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Abstract

This is a study of one participant’s reflective practice as she worked to develop online communities in a face-to-face science course. Her process of reflective practice was examined in order to address factors that influenced her learning path, and the benefits and challenges of collaborative action research. These research goals were pursued using a collaborative action research methodology, initially chosen for its close match with Schöns (1983) model of reflective practice. The participant’s learning fit with Mezirow’s (1991) model of transformative learning. She began with beliefs that matched her goals, and she demonstrated significant learning in three areas. First, she demonstrated instrumental learning around the constraints of workload and time, and achieving online learning community indicators. Second, she demonstrated communicative learning that helped her to see her own needs for feedback and communication more clearly, and how other process partners had been a support to her. Third, her emancipatory learning saw her revisiting and questioning her goals. It was through the reflective conversation during the planned meetings and the researcher’s re-framing and interrogation of that reflection that the participant was able to clarify and extend her thinking, and in so doing, critically reflect on her practice as she worked to develop online learning communities. In this way, the collaborative action research methodology was an embodiment of co-constructivism through collaborative reflective practice. Schon’s (1983) model of reflective practice positions a lone practitioners moving through cycles of plan-act-observe-reflect. The results from this study suggest that collaboration is an important piece of the reflective practice model.
My son is an aspiring musician who currently finds immense fulfillment in working with a particular partner to write and perform duets. Each brings unique skills to this partnership: he, a melodic tenor voice and amazing writing skills, and she, an astonishingly rich alto voice and phenomenal piano skills. He writes lyrics as easily as breathing; she creates piano arrangements that are profoundly moving. Either could stand alone as a soloist. What makes their joint performances so compelling is the partnership itself, the combining of their personal attributes towards a shared goal. In sharing the goal, together they create performance music that breaks the bonds of what either could individually achieve.

In this respect they demonstrate the principles underlying Mezirow’s model of transformative learning. Each continues to develop instrumental learning (no pun intended!) as they explore new music. Communicative learning continues as they interact to perform together. Each learns about self, about interaction, and as well, about the success of individual instrumental learning through the interactions. Their learning demonstrates emancipation in the sense that their learning as a result of their collaboration takes them well beyond preexisting musical plateaus; they are freed to explore at a new level.
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CHAPTER ONE: THE PROBLEM

Preamble

This is a study of reflective practice as exemplified by one participant’s learning as she worked to develop online communities in a face-to-face science course. Her goal in establishing these groups was to provide students with additional opportunities for communication and collaboration in a large class. The participant’s process of reflective practice was examined in order to address factors that influenced her learning path, and the benefits and challenges of collaborative action research.

The participant’s learning path was explored through a process of collaborative action research during the development of online learning communities in one course during one academic term. Central to the study was the participant’s ability to reflect on learning, growth, and the resulting change in practice. Friedlander (1983) wrote about the strong connection between learning and change: “Learning is the process. Change is the outcome” (cited in Mitchell, 1995, p. 6). This study examined the learning process of the participant as she undertook to implement a change in practice.

A collaborative action research methodology, initially chosen for its close match with Schön’s (1983) model of reflective practice, was used to examine the participant’s reflective path. It was through the reflection conversation during the planned meetings and the researcher’s re-framing and interrogation of that reflection that the participant was able to clarify and extend her thinking, and in so doing, critically reflect on her practice as she worked to develop online learning communities. In this way, the collaborative action research methodology was an embodiment of co-constructivism.
through collaborative reflective practice. Schön (1983) describes a model for reflection practice that positions a lone practitioner moving through cycles of \textit{plan-act-observe-reflect}. The results from this study suggest that collaboration is an important piece of the reflective practice model.

The current trend around developing online learning communities has arisen from concern about student isolation from the learning process. This area of literature sets a theoretical foundation that supports the primary finding of this study. An understanding of the benefits of student collaboration to avoid isolation and burnout may inform practitioners’ reflective practice. In order to articulate this connection clearly, the background to the study describes the development of the study focus, the examination of the particular problem in the unique setting, and links the underlying issue of learning in isolation to the study finding that collaboration with faculty peers provides a strong support to the learning process.

Background to the Study

Since the early 1990s learners have seen an enormous surge in the number of postsecondary courses being offered with an online component. An emergent benefit of the increased use of technology has been the opportunity for students to collaborate with others in online learning communities. \textit{Online learning communities} (for glossary see Appendix A) refer to groups of students communicating with each other in an online environment while sharing resources and skills as they work towards a common goal. This collaboration provides opportunity for co-construction of knowledge, and helps overcome the isolation of the learner.
While much has been written around creating online learning communities in the postsecondary setting and the benefits in doing so, the process has been rapid, and faculty may have had little opportunity to critically reflect on this change in their practice. Lynch (2002) refers to this difficulty in his statement, “Evidence...suggests that much of this storm of development has been undertaken in haste, without expert preparation or knowledge of the process” (p. 1).

At the same time, there is a sense that there may be less than full understanding around how to best use the new technological tools to address pedagogical needs. As Tony Bates (2003) commented in his plenary address at the annual conference of the Society for Teaching and Learning in Higher Education, “faculty focus on technology rather than instructional design” (T. Bates, personal communication, June 2003).

In February 2003 I had the good fortune to attend a conference on Technology in Teaching. Two things became clear from participant discussion at the several sessions I attended.

1. Faculty members are motivated to create online collaborative learning groups (learning communities), because they see them as a way of providing increased interpersonal communication opportunities to students in potentially depersonalized large classes, and

2. faculty members are often unsure as to the process of creating these same groups.

It was clear that while there is a wealth of literature on how to form groups and what pitfalls to avoid (e.g., Collison, Elbaum, Haavind, & Tinker, 2000; Elbaum, McIntyre, & Smith, 2002; Hanna, Glowacki-Dudka, & Concericao-Runlee, 2000; Jacques, 2000; Lynch, 2002; Palloff & Pratt, 1999; Salmon, 2000; Salmon, 2002), the process of
implementing online learning communities was perceived by the faculty present at the conference as difficult and poorly supported. What emerged was that faculty members wished to reap benefits for their students in terms of group learning dynamics (Salmon, 2000) and student engagement with the course and its content (Palloff & Pratt). They also wished to ultimately create communities that would support group members, and in creating these student support structures, potentially free some faculty time for other work. At the same time, they often expressed concern and anxiety about having the time and the knowledge to begin such a process. Blanchette and Pinet (2003) refer to these challenges. “Various national and campus surveys indicate that faculty members identify the main barriers to adoption of e-learning as: poor knowledge about e-learning’s potential, effectiveness and process, lack of support for development and use, and insufficient time for development” (p. 31).

Brookfield (1995) contends that the gap in support for changes in practice creates new challenges for instructors who traditionally may have focused primarily on subject content as opposed to reflective practice about their teaching. This gap is of particular concern for instructors who now must also come to terms with integrating new technologies into their courses. The dilemma is echoed in the words of Palloff and Pratt (1999): “As technology comes into greater use, faculty and students alike are grappling with the changes it brings to the educational environment” (p. 4). One of these changes, and a key component identified in the successful creation of online learning communities, is the instructor’s ability to move from being the sage on the stage to the guide on the side (Salmon, 2000). While the participant may identify a desire to achieve this goal, his or her belief system about teaching may either support or inhibit this aim. Other factors
null
may be environmental. Time and commitments to other academic or personal activities can be significant impediments, as indicated in an observation by Milliron and Miles (1998): “Faculty loads make it difficult to give technology the time necessary to create or use this resource to... best advantage” (p. 23).

While there are many resources that discuss the value of implementing online collaborative learning groups, none seem to exist that illuminate the process of implementing this teaching strategy and, in particular, the cycles of change that the professor must go through in order to do so. It may well be that the absence of literature in this area is a result of the relative newness of the developing field of Scholarship of Teaching and Learning in higher education contexts. Grose (2003) discusses reflective professional practice and how it is seen by both institutions and faculty members. “Faculty, while asserting the importance of teaching, request release time from teaching to pursue their research interests.... few universities offer release time from research to develop teaching expertise” (p. 4).

Another challenge facing practitioners who wish to implement changes in practice is the relative isolation of the faculty member’s role. While there may be informal opportunities for discussion, formal collaborative networks are seldom seen. Sammon (2003) sees action research as providing a supportive framework for change implementation. “Faculty, students, and administrators may find action research useful in their attempts to gain support and minimize resistance by engaging significant people in defining, planning and implementing changes” (p. 4). In this way, the collaboration amongst teaching professionals parallels the principles of collaboration amongst students.

With all the focus on creating learning communities, what has been largely
ignored is the facilitator of this process: the instructor as isolated reflective practitioner who must adopt and adapt to change. This study deals specifically with that issue by tracking the reflective practice of one instructor as she attempts to create online learning communities. Reflective practice through collaborative action research has seen wide use in the public school system, and there is a significant body of literature that addresses the experience in that setting, although much of it dates from the mid-1980s and early 1990s. What is missing from the published knowledge are descriptions of this type of informed change in the postsecondary setting.

Accordingly, this study examined that path of reflective change, specifically looking at environmental and personal factors that affected the participant’s progress towards achieving the study goals, and also looked at how collaboration and communication with others affected that path. While the study is specific to one practitioner, recommendations arising from her learning-in-action could assist with raising the levels of awareness for faculty members implementing a significant change in teaching practice.

Statement of the Problem Situation

The participant sought to develop online learning communities as a means of encouraging communication and collaboration amongst students in a large face-to-face science class. Typically, as reported by Stofflett (1998), science classes are not taught using these strategies. “Learning through collaboration and discussion were missing in science classes” (p. 1).

The problem situation is thus twofold:
1. The participant wished to successfully implement online learning communities to increase communication and collaboration amongst students and wished to use a process of reflective practice in order to do so.

2. The researcher wished to examine the reflective path of the participant as she implemented changes in practice and to identify personal, environmental, and collaborative factors that affected that path.

Both desired to summarize the participant’s learning through that process and to make recommendations that could inform (a) the participant’s path for future change and (b) the path of other practitioners seeking to develop online learning communities.

Purpose of the Study

The purpose of this study was to examine reflective practice as exemplified by one participant’s learning as she worked to develop online learning communities as an additional component in a face-to-face course.

This main purpose can be broken down into two smaller steps. The first was to examine the environmental and personal issues affecting the participant’s process of reflective practice as she developed collaborative learning groups in an online teaching component. The second aim of the research was to uncover challenges and benefits of the collaborative aspect of the research as it affected the reflective practice of a faculty member.

Analytic Framework

This study examined the participant’s learning path as she reflected on the
development of online learning communities. Learning along that path took many forms. Mezirow (1991) provides a model of learning that incorporates instrumental, communicative, and emancipatory learning. Instrumental learning relates to technical knowledge, or "learning to control and manipulate the environment" (p. 73); communicative learning is about interacting with others, or "the dynamics of learning to understand others" (p. 73); emancipatory learning is learning through reflective practice about self and changing beliefs, or "what impels us, through reflection, to identify and challenge distorted meaning perspectives" (p. 73).

From Kreber (2003) came the idea to apply this framework to discuss faculty’s learning about teaching. Learners begin the process with a set of personal beliefs that shape their path. In this study, instrumental learning referred to the participant’s knowledge gain about creating online learning communities and her path towards the indicators as well as her increased awareness of particular influences of time constraints and institutional supports and how to manage them. Communicative learning occurred as she interacted with others, including the students, the teaching assistant, and the researcher. The participant showed emancipatory learning when she talked about how she would benefit from her learning in other areas so as to be able to make future improvements. It should be noted, however, that this study did not specifically examine Mezirow’s framework, but rather made use of the framework to organize results and insights.

Research Questions
A review of the literature, and in particular Kreber (2003), Lock and Munby
(2000), and Mezirow (1991), led to the four research questions that formed the focus of this study. Mezirow’s terms are shown in parentheses for clarification.

1. In what ways does the faculty member’s philosophical approach to teaching affect her process? (beliefs)

2. In what ways does the participant learn about the process of implementing changes and factors affecting that process? (instrumental learning)

3. In what ways does the participant learn through her communication with other process partners? (communicative learning)

4. In what ways does the participant change as a result of the process, and what factors affect this learning? (emancipatory learning)

Additional questions served as the basis for the participant interviews and meetings and are discussed in the instrumentation section of Chapter Three.

Rationale

In an age when online learning is seen as (a) possibly beneficial to students and (b) a required change to accommodate increasing enrollment, it is essential that faculty, faculty developers, and university administrators have a clear understanding of what is involved in implementing these new teaching strategies.

Beaudoin (1990) provides recommendations of the supports that institutions can provide to “aid faculty in modifying conventional teaching behaviours and acquiring the skills necessary to become effective distance educators” (p. 27). Unfortunately, it is difficult to find any such articles written from the faculty member’s perspective. The particular advantage of action research is the opportunity it provides to hear directly from
the faculty member participant.

Literature on creating learning communities is available as how-to books and articles of strategies; little, however, has been written about the process of implementing these suggestions and the challenges that may exist for faculty members who wish to undertake a significant change in practice. The goal of this study was to understand a practitioner’s perspective by studying her reflective practice and, in doing so, to address a weakness in published research. In writing about the research available for teachers and why teachers should themselves engage in classroom research, Cochran-Smith and Lytle (1996) observe,

What is missing from the knowledge base for teaching are the voices of teachers themselves, the questions teachers ask, the ways teachers use writing and intentional talk in their work lives, and the interpretive frames teachers use to understand and improve their own classroom practices. (p. 93)

The links between the process of reflective practice and that of collaborative action research allow researchers to turn to action research studies on other topics to illuminate inquiry. Even here, however, the literature is limited. Yost, Sentner, and Forlenza-Bailey (2000) write about the process of critical reflection and link it to action research, although their work, which targeted public school teacher development, is not specific to creating online learning communities. The work of Lock and Munby (2000) is perhaps more relevant, as they discuss issues of interaction that arise through the process of collaborative action research, but their work is still in a public school setting.

While the learning sciences have made tremendous contributions to K-12 education (Brantsford, Brown, and Cocking, 2000), we see little attention to
higher education in general and a definite absence in distance education. There is little discussion of constructivist learning theory guiding the design and practice of distance education. (Duffy & Kirkley, 2004, p. 2)

In view of the rapid development of web-based learning modules, this gap in the literature becomes significant.

Postsecondary education in Canada and the United States is undergoing a period of rapid and profound change, and perhaps no change has been more widespread, more significant and more controversial than the incorporation of web-based technology into almost every aspect of academic life. (McGraw-Hill Ryerson, 2002, p. 3)

While there is an increasing body of literature on how to develop online teaching components, including how to implement online learning communities, there is little if any that examines the practitioner's reflective process during implementation and, in particular, what constraints exist and what supports can be created.

Scope and Limitations

The study was conducted at a university in southern Ontario and involved one assistant professor who sought to develop online learning communities in a large face-to-face class in sciences as a means of increasing communication and collaboration amongst students. The course the participant chose for the study setting was a science course of approximately 200 students, which she divided into online groups of four to five students each. This online environment was supported using WebCT.
Limitations

Limitations of this study included the purposive sampling, as different participants would likely have generated different perspectives. At the same time, the choice of participant was also a strength for this particular study, as a match with the selection criteria was essential to the study purpose.

The study focused on the participant’s reflective path, and it was her perceptions that were examined. As this study focused on a sole female participant, it may be true that the study findings are gender biased.

No attempt was made to collect data from students. Student feedback is sometimes used as a means of data collection (Mills, 2003), and the participant had access to student feedback, grades, and online discussion postings. This study, however, in focusing primarily on the reflective process of the participant instructor, made no attempt to collect data from students or any persons other than the participant. Indicators for the study purpose did not depend on direct access to student data.

Finally, there was the limitation inherent in using only one participant. As discussed by Mitchell (1995), “because action research projects tend to be conducted in unique settings, the results cannot be generalized, nor can they be replicated” (p. 60). Practitioners must decide for themselves, after reading the description of the study context, whether the results pertain to their own setting.

Outline of Chapters

In this Chapter, I have discussed the background and rationale that led to this study. I have outlined the problem and the study questions, and have indicated that
Mezirow's (1991) model of transformative learning provides a useful analytic framework for the study. Scope and limitations of the study have been presented so the reader will be able to determine whether this study is of relevance to his or her own situation.

In Chapter Two, I turn to the background literature of relevance to the study. I outline the origins of the study indicators as well as theory that informed the study purpose of examining reflective practice. I elaborate on Mezirow’s transformative learning model and outline the processes of reflective practice that lead to transformative learning.

In Chapter Three, I present the methodology used in the study, including the rationale for selecting an action research framework and the means of selection of the participant. Data collection methods and data analysis procedures are explained in detail, and I discuss the credibility of the work as well as its limitations.

In Chapter Four, I present the study data, using the framework of Mezirow’s (1991) model of transformative learning. I describe the participant’s philosophical approach that determined the study direction; her instrumental learning about the process of implementing online learning communities, and her management of the constraints she encountered; her communicative learning through interactions with other process partners; and her emancipatory learning that resulted in significant personal and professional growth.

In Chapter Five, I provide a summary of the study and discuss the study findings, including insights arising from those findings. I briefly discuss my own transformation through the study process, and then I outline implications arising from the study for practice, theory, and further research.
CHAPTER TWO: REVIEW OF RELATED LITERATURE

In this chapter, I explore the literature of relevance to this study in four parts. The introductory section provides a brief discussion of the importance of the practitioner’s beliefs in contributing to readiness to undertake reflection practice and sets the stage to address in what ways the participant’s philosophical approach to teaching affected the study outcomes. The second section focuses on the instrumental aspects of the study: the background rationale and the formation of the study indicators for creating online learning communities that incorporate sound pedagogical practices. I also touch on some of the literature around environmental factors affecting faculty development. This combination provides background for addressing the effects of the environmental influences on this process. The third section addresses literature around the communicative aspects of the study, specifically the human interactions in which the participant engaged, and also supports the response regarding what effects the collaborative process had on the participant’s success at achieving the goals. In the final section of this chapter, I look at literature concerning emancipatory learning and address approaches to change and transformative learning. This sets the stage for addressing what the participant has learned as a result of her reflective process.

Beliefs

A practitioner’s philosophy towards teaching, or beliefs system, determines the starting point for professional and personal development. “Research into teachers’ beliefs...is grounded in the understanding that these concepts drive teachers’ practices” (Kane, Sandretto, & Heath, 2002, p. 204). This concept is expressed in Kelly’s (1955)
personal construct theory. The central premise of this theory is that “a person’s processes are psychologically channelized by the way in which he anticipates events” (p. 46). Plans for implementation of new teaching strategies must match with the practitioner’s personal beliefs system, or it will be unlikely that the change path will be successful. For example, Lock and Munby (2000), in their study of a teacher’s efforts to change his assessment practice, report that “his beliefs about the nature of teaching and learning” (p. 267) were one of the major impediments to plan implementation because his plan did not fit with his existing beliefs. While they do mention the constraint of environmental issues, they conclude that “without altering his beliefs about teaching and learning and his teacher-centered instructional practices... it [would be] particularly difficult to implement [the plan]” (p. 267).

The concept that practitioners’ beliefs are a key factor in the success of change implementation is a common one in the literature, found in Calderhead (1996), and Lock and Munby (2000), to name but two. However, this does not mean that existing teaching skills and knowledge play no role; rather they, in combination with teacher beliefs, are the key to whether or not the change will be successful. Lock and Munby write that “the beliefs teachers hold influence their behaviour in the classroom... so one cannot proceed far in studying implementation in classrooms without attending to the beliefs and knowledge held by the teachers involved” (p. 269). Kane et al. (2002) echo the idea that the two separate factors that underpin teaching practice are teacher knowledge and teacher beliefs (p. 179). It is the combination of these two that led to the participant’s readiness for the study, and it is through the participant’s reflection on these two areas that it is possible to understand her learning path.
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The concept that practitioners’ beliefs are a key factor in the success of change implementation is a common one in the literature, found in Calderhead (1996), and Lock and Munby (2000), to name but two. However, this does not mean that existing teaching skills and knowledge play no role; rather they, in combination with teacher beliefs, are the key to whether or not the change will be successful. Lock and Munby write that “the beliefs teachers hold influence their behaviour in the classroom... so one cannot proceed far in studying implementation in classrooms without attending to the beliefs and knowledge held by the teachers involved” (p. 269). Kane et al. (2002) echo the idea that the two separate factors that underpin teaching practice are teacher knowledge and teacher beliefs (p. 179). It is the combination of these two that led to the participant’s readiness for the study, and it is through the participant’s reflection on these two areas that it is possible to understand her learning path.
Instrumental Learning

This section will focus on the literature that led to the creation of the study indicators. I begin with background definition of a learning community and ways in which successful learning communities embody constructivism. I then discuss the generation of the study indicators for successful online learning communities as well as indicators of successful process for creating those communities. In addition, literature addressing some of the environmental constraints that can affect the implementation path will be highlighted. Even though this action research study evolved to encompass a broader perspective than simply implementing online learning communities, the background is included to inform others about the focus for the study participant. In addition, the underlying principles of co-constructivism in community apply not only to the student interactions, but also to those of other process partners. In this way, insights from the literature around benefits of students in community parallel the study findings of the benefits of practitioner reflection in community.

Learning Communities

The participant in this study wished to create online learning communities as a strategy to encourage communication and collaboration amongst students in a large face-to-face class. This plan was in keeping with learning theory which suggests that many students learn best when working in small groups. In 1921, Freud said, “people are drawn into, and remain in, groups because of emotional ties between members” (Jacques, 2000, p. 3). The small group structure can be particularly beneficial in large class settings to avoid student feelings of disconnection. In particular, courses in the participant’s department in science may not traditionally have been seen to lend themselves to learning
in communities. Stofflett (1998) reports that science courses have not typically been taught using these teaching strategies. "Learning through collaboration and discussion were missing in science courses" (p. 1). Collaboration may provide an opportunity for students to connect more strongly with each other and therefore with their learning.

"Many students disliked the passiveness and anonymity they experienced in large classes and the resulting feelings of isolation" (p. 1). Disconnection may be particularly apparent in large class settings, where students can feel lost in a sea of faces. The result is "what Hargreaves (1989) calls the 'fragmented individualism' in which each is obliged to work... alone in the densely populated jungle of the classroom" (Huberman, 1993, p. 31). Learning communities can combat this sense of isolation.

The recognition of the benefits of small group discussion in learning is not new; it can be traced back to some of our earliest understandings about learning. Yost et al. (2000) trace the idea of learning through discussion back to Plato. "Plato postulated that dialogue is the highest form of teaching" (p. 43). Through dialogue, students can grow. "Discussion is uniquely designed to encourage students to strengthen their intellectual muscle and practice their strategic learning" (Cross, 2002, p. 8).

Accordingly, the participant planned to create opportunities within her class for the potential benefits of learning in communities to be realized. A learning community may be defined as a group of learners who collaborate to construct new knowledge. Shaffer and Anundsen (1993) define a learning community as a "group where people share common practices, are interdependent, make decisions jointly, identify themselves with something larger than the sum of their individual relationships, and make a long-term commitment to well-being (their own, one another’s, and the group’s)” (cited in
With the recent growth in online learning, practitioners are rethinking definitions of learning community that relate to location. Palloff and Pratt (1999), for example, relate that "communities today are formed around issues of identity and shared values; they are not place-based" (p. 25). In fact, they argue that online courses provide an ideal opportunity to explore practices in creating learning communities: "In distance education, attention needs to be paid to the developing sense of community within the group of participants in order for the learning process to be successful. The learning community is the vehicle through which learning occurs online" (p. 29).

Constructivism in Community

Constructivism refers to the process of building knowledge from personal experiences and prior knowledge. Geelan (1997) writes that from the constructivist perspective, "knowledge is actively constructed by learners, rather than transmitted by teachers, and such knowledge is constructed on the foundations of students' existing knowledge" (p. 26). C.M. Johnson (2001) contends that these philosophical characteristics of constructivism serve as the foundation upon which learning communities are built. "Communities of practice trace their roots to constructivism (Knowles, Holton & Swanson, 1998; Oliver & Herrington, 2000; Palloff & Pratt, 1999; Persichitte, 2000; Squire & Johnson, 2000), whose main principle shifts control from instructors to learners" (p. 47).

Collaborating in learning communities allows students to co-construct knowledge. Constructivism goes hand in hand with the human interaction necessary in creating learning communities. While constructivist learning can be individual, within a group the
opportunities for interactions strengthen that learning. According to C.M. Johnson (2001), "constructivist principles apply to learning processes... with respect to constructing meaning with problem-based learning, structuring meaning via social activities, negotiating meaning through schemata and expectations, as well as building knowledge through interactions" (p. 48).

Constructivism in community may be defined, therefore, as the building of knowledge through interaction with others such that the knowledge is based not only on one's own experiences but also on those of others in the collaborative partnership. In this co-constructivism, group members work towards a common goal that no one would reach on his or her own. Learning communities depend on the co-construction of knowledge, which involves a process of working collaboratively to create shared understanding. Hathorn and Ingram (2002) define collaboration as "the interdependence of the group participants as they share unique ideas and experiences. The result is better than any one of the individuals could have obtained by working alone" (p. 33). They distinguish between collaboration and cooperation, which is characterized by "dividing the work and delegating a portion to each individual" (p. 33). By contrast, "collaboration occurs by taking advantage of the strengths of all participants" (p. 33).

Creating Online Learning Communities

The creation of successful online learning communities depends on a clear understanding of goals and indicators for the process, and in particular, what leads to successful collaboration as opposed to merely being part of a group. Hathorn and Ingram (2002) refer to this concern with attempting to create collaborative groups, stating that simply placing students into groups is unlikely to result in collaboration by itself" (p. 33).
These authors identify six characteristics of a collaborative group.

1. A group goal, which should be such that it can be better accomplished by working together than by working alone;
2. Equal participation, such that all members do roughly the same amount of work. In online environments this can most easily be measured by number and length of postings on task;
3. Interaction, which occurs when group members respond thoughtfully to statements in a discussion thread;
4. Interdependence, which occurs as group members place value on the contributions of other group members and promote the learning of others in the group;
5. Independence from teacher, such that the group members rely on each other for problem-solving and feedback rather than turning to the teacher;
6. Synthesis of information, which occurs through new insights resulting from group discussion (Hathorn & Ingram, 2002, pp. 35-36).

These findings parallel those of Palloff and Pratt (1999) regarding online communities, who list five indicators that demonstrate the existence of successful learning communities.

1. Active interaction;
2. Shared resources amongst students;
3. Collaborative learning (evidence of comments primarily made student to student rather than student to instructor);
4. Socially constructed meaning (evidence of effort to achieve agreement on meaning);

5. Support and encouragement among students, as well as willingness to critically evaluate others' work.

While the above are indicators of a successful group, creating these successful collaborative learning groups requires a goal-oriented process. Palloff and Pratt (1999) discuss the following requirements for the path to implementation:

1. Clearly define the purpose of the group.
2. Create a distinct gathering place for the group.
3. Promote effective leadership from within.
4. Define norms and a clear code of conduct.
5. Allow for a range of member roles.
6. Allow for and facilitate subgroups.
7. Allow members to resolve their own disputes (p. 24).

In addition, there are distinct stages in this process. C.M. Johnson (2001) writes of the five stages with respect to the life cycle of learning community development, whether the community is traditional or virtual: "'forming, norming, storming, performing, adjourning'" (p. 51). Another five-stage model is presented by Salmon (2002), and while the stages have been given different labels, the model is essentially the same. C.M. Johnson's stages are shown in parentheses for comparison.

1. Access and motivation—get everyone online and committed to the process (forming).

2. Online socialization—establish online identities, interacting with others (norming).
3. Information exchange–share resources, brainstorming (storming).


This model implies that the forming of collaborative groups in the online environment is a process that may take some time and facilitation. Part of the success of that facilitation will depend on the facilitator’s ability to function from a learner-centered leadership role of guide on the side, as opposed to the more traditional role of being the sage on the stage (Salmon, 2002). Huang (2002) describes the guide’s role. “The instructor’s role is that of facilitator. That is, learners move from passive receivers to control their learning. The instructor may change his or her role to be a consultant, guide, and resource provider” (p. 31).

Any plan for change in practice should also be designed to respect existing knowledge about principles of learning. In this respect, the indicators of online collaborative learning communities reflect some of the key points that Chickering and Gamson (1987) cite as good practice for undergraduate education:

1. Encourages contacts between students and faculty.

2. Encourages co-operation among students.


5. Emphasizes time on task.

6. Communicates high expectations.

7. Respects diverse talents and ways of learning.

Online learning communities provide a good match with Chickering and
Gamson's (1987) principles of good practice and encourage a collaborative approach to constructivism. The forming of such groups is a process of several steps that may take time to achieve, and appropriate facilitation will be key to success.

**Environmental Factors**

Environmental factors for this study included time, workload, and institutional supports. Teaching professionals are challenged with these potential constraints any time they undertake to implement a change in teaching practice. Such constraints can be particularly evident with regard to technological changes, which often require a significant investment of up-front time. Blanchette and Pinet (2003) note that “development support and time are probably the most neglected and difficult of the key barriers to e-learning adoption” (p. 31). This section outlines some of the existing literature around the environmental factors of time, workload, and institutional support.

**Time.**

A primary impediment facing faculty members is time constraints. Numerous authors writing about faculty development make particular note of the lack of time as a constraint (Gmelch, 1987; Grasha, 1987; Noel, 1987; Seldin, 1987; Sorcinelli & Gregory, 1987; Wagner, 1998).

It happens with oppressive frequency that professors are expected – as a matter of routine – to manage, and manage successfully, a multiplicity of tasks in a short time. Usual tasks include preparing for classes, keeping current in the discipline, pursuing research, writing journal articles, attending committee meetings, performing community and institutional service, and attending professional conferences. (Seldin, p. 13)
Some researchers (e.g., Grasha, 1987; Noel, 1987) recommend that faculty members acquire strong time management skills as a means of dealing with the time and stress challenges. Grasha believes that practitioners create their own problems.

Life in an academic setting is often busy. The people who complain most about not having enough time to meet their commitments, however, are often their own worst enemy. They usually agree to do too much and do not manage their time properly. (pp. 53-54)

Time is not an isolated commodity; it is linked to the nature, variety, and management of tasks with which practitioners must fill it.

Noel (1987) talks about the long-term implications of poor time management on stress levels. "The lack of proper time management results in a decreased level of job satisfaction, which in turn adds to the internal stress level....In addition, a lack of assertiveness frequently causes problems" (p. 72). There are a number of ways in which a person might deal with this increased stress level in order to manage it. Hopson and Adams (1976) discuss methods individuals use in "controlling the amount of stimulation in the environment" (p. 16). The authors list several forms of what they term cognitive shielding:

1. Filtering—systematically disregarding certain stimuli in the environment according to some priority scheme
2. Queuing—delaying decisions during a heavy decision resolving period
3. Approximation—making decisions hastily and consequently less thoughtfully
4. Temporary drop-out—refusing to resolve decisions until after a recuperation period (pp. 16-17).
These coping mechanisms may be evident when work load becomes too onerous, which seems to happen frequently in the contemporary academic setting. Recently Dr. John Mitterer gave a lecture on promoting the scholarship of teaching and learning at universities. He specifically referred to the challenge of time constraints facing anyone who is seeking to engage in reflective practice. "I don't know anyone who has told me in the last five years they're bored. I think finding time is always going to be a personal challenge" (J. Mitterer, personal communication, January 12, 2004). Grundy and Kemmis (1981) write of this concern, particularly as it relates to undertaking research.

It should be noted in this context that participation in action research adds further demands to the work of busy practitioners, and that techniques need to be made accessible to practitioners so that action research can be carried out with the least possible disturbance to practice itself. (p. 94) Faculty implementing a change in practice must acknowledge that it will likely require an input of substantial additional time and that they will need to find ways to make room in their already busy schedules.

Institutional Supports.

Time constraints may also be tied closely to the institutional culture—both the supports provided, and the tasks required of the individual faculty members. In a recent online discussion around converting courses to include online components, a participant wrote,

It is my belief that the very best of face-to-face learning translates to online. It requires very engaged faculty to make it happen. That engagement needs to come out of support and encouragement within the institution as well as personal
motivation” (A. Macpherson, personal email communication, January 28, 2004).

Sadly, that support is not always in evidence. Perry and Cooper (2001) describe the situation of a practitioner seeking to engage in reflective practice. The practitioner felt she was “caught within the maelstrom of rapidly tumbling kaleidoscopic pictures — new roles, new courses, new administrative structures, a publish or perish expectation, constrained budgets, new colleagues, new challenges, further study, committees, committees, and more committees” (p. 46). There was no question of her institution releasing her from any of these tasks in order that she might spend time improving her practice.

Not that this is particularly new information. In 1996, Wright and Stammer wrote about the requisite institutional supports that could help but might not be provided. They list several factors, including “adequate professional development opportunities... support for instructional design projects that incorporate new technology; release time to enable instructors to try something new” (p. 18). The result is an academic paradox. Scholarship of teaching and learning may be encouraged at postsecondary institutions. In practice, there may be less than overwhelming institutional support for these endeavours.

It is clearly one thing for a dean or department chairperson to say, ‘Go forth and collaborate,’ and quite another to provide support through personnel policies, merit pay arrangements, released time, credit load, tuition remission, and other forms of institutional aid. (Whitford, Schlechty, & Shelor, 1997, p. 153)

This is clearly an area for future consideration if faculty members are to undertake research into their teaching practice and contribute to scholarship in teaching and learning.
Section Summary

The creation of successful online learning communities, in combination with an understanding and management of the environmental influences that might affect that process, constitutes what Mezirow (1991) refers to as instrumental learning. Successful online learning communities incorporate principles of collaboration and constructivism, or co-constructivism. The study indicators of successful online learning communities arose from these principles and closely parallel the sound principles of practice in education. Attention to environmental constraints, such as academic work load and time management, should be a focus for both faculty members and administrators.

Communicative Learning

Communicative learning refers to learning gained through interaction with others. The benefits of communication and collaboration with colleagues are extolled throughout the literature and are reported as co-constructing knowledge, using others as sounding boards, and creating heightened personal learning and higher levels of engagement in the learning process. At the same time, there can be challenges to collaborative ventures, as two or more people with diverse perspectives must negotiate a common path. In this section, I first outline the potential benefits of collaboration, and then briefly touch on some of the possible inherent difficulties.

Benefits of Collaboration

Much of the life of teaching practitioners is spent in relative isolation. Academics may have little opportunity to test their own practices against those of others and even less opportunity to get feedback on these practices. “Isolation feeds the continuous
insecurity about one’s pedagogical capacity because one’s work is wrought alone, never subjected to outside scrutiny, and deflated by fantastic images of better teachers lurking in other classrooms or other schools” (Huberman, 1993, p. 31). In solitary reflection, it is not always possible to get enough distance from the situation to see it clearly.

The self-reflection of a lone subject... requires a quite paradoxical achievement: one part of the self must be split off from the other part in such a manner that the subject can be in a position to render aid to itself... in the act of self-reflection the subject can deceive itself. (Carr & Kemmis, 1986, p. 200)

Chivers (2003) echoes this paradox of faculty members attempting improvement in practice on their own, and highlights how it is unlike professional practice. “It is perhaps strange that our concept of the reflective practitioner is so often based on the lone individual, when so much professional work and learning is carried out in teams and groups” (p. 6).

Enter the researcher as collaborative partner in reflective practice. Practitioners who don’t find solitary reflection satisfactory may welcome opportunities to reflect with a partner. “Some professionals who find it difficult, for whatever reason, to benefit in development terms from private reflection, benefit greatly from opportunities to reflect... with appropriate interviewers” (Chivers, 2003, p. 13).

One of the advantages of this interaction can be the social connectedness that addresses the issue of isolation amongst practitioners. “The knowledge-building process occurs because of the lively forum of joint activity and social interactions that take place among the participants” (Sherry, 1996, p. 29). It is co-constructed knowledge that is one of the primary gains of collaborative partnerships. “Collaboration may be understood as a
process of joint meaning-making that occurs between teachers and researchers as both parties become engaged as joint theorists or researchers in the construction of common meaning (Less & Shulha, 1999)” (Lock & Munby, 2000, p. 269). Collaboration also connects the practitioner to others such that diverse perspectives may support critical reflection. This interaction amongst group members may positively affect individual members’ reflective practice.

Our preliminary findings show that as we... build a shared base of knowledge, experiences, and common understandings, and generate further questions, the group’s discussions have a strong and positive influence on the metacognitive processes of individual group members. (Sherry, p. 32)

It may be true also that collaboration supports the participant in time management and staying on track with the research process. Mullen (2000) writes that “meeting, exploring options, getting feedback, and staying on target were all assets to... learning” (p. 10). In addition, the benefits of collaboration may continue after the formal collaborative activity is finished. An appropriate adage may be, “those who collaborate together, stay together.” It is as if the collaborators, having formed a satisfying team, continue with their team efforts. Mullen reports, “This kind of engagement among partners can lead to such activities as group problem solving, joint book publishing, collaborative presentation, and team teaching” (p. 4).

It may be that the success of the partnership lies in its symbiotic qualities, wherein each partner benefits in having his or her own needs met through the collaboration. Whitford et al. (1997) describe the roles of participant and researcher.

What seems to characterize the roles in symbiotic collaboration approximates,
'I'll help you with your problems, and you'll help me with mine.' For example, 'If you let me hang around the school so I can do my research, I'll help you design the fall in-service.' Reciprocity is the key to the success of symbiotic collaboration. (p. 154)

The symbiotic nature of the collaborative relationship is further detailed by Bickel and Hattrup (1995). "Symbiotic relationships are characterized by three fundamental characteristics: (a) dissimilarity among the partners, (b) pursuit of mutual self-interests, and (c) attainment of self-interests by each partner" (p. 55). In collaborative action research, participant and researcher may be from different departments or even institutions, there may be self-interests that result in a negotiated shared goal, and the realization of that shared goal means that self-interests are also met.

This relationship provides opportunities to open the discussion beyond the individual, as separate from a closed reflection loop, where no outsiders are involved. Huberman (1995) discusses the resultant differences between closed and open cycles of professional development. In a closed cycle, the individual practitioner moves through the cycles without the apparent benefit of an outside sounding board. In an open collective cycle, a facilitator supports the process and other specialists contribute as needed. In Huberman's words, "this combination of experience sharing and reflection is a core component" (p. 210).

Action research, in which participant and researcher collaborate through cycles of plan-act-observe-reflect, provides the ideal framework for this kind of collaborative relationship.

In 'practical' action research, outside facilitators form cooperative relationships
with practitioners, helping them to articulate their own concerns, plan strategic action for change, monitor the problems and effects of changes, and reflect on the value and consequences of the changes actually achieved. This is sometimes called a ‘process consultancy’ role. (Carr & Kemmis, 1986, p. 203)

Participation in an action research project can provide the faculty member with a support system and, at the same time, can facilitate the practitioner moving towards an improvement in practice. “In action research, participation is a requirement; it generates greater commitment and increases the likelihood of action” (Royer, 2002, p. 234).

In this way, collaboration in action research may parallel the mentoring model, especially when the researcher has specific knowledge that is of use to the participant in implementing the desired change in practice. The results can be beneficial to the participant. “Mentoring is nearly always associated with one or more highly desirable outcome(s) for those being mentored” (Enerson, 2001, p. 7). One of the chief benefits is the supportive nature of the relationship and involvement in the matter at hand. “We learn that those who are mentored will...become more actively engaged in the subject matter” (Enerson, p. 8). In this respect, the potential benefits of the collaboration between researcher and participant matches those of the collaboration amongst students by engaging participants in the learning process.

If collaboration can result in greater learning success for students, might collaboration in reflection and research support greater learning for practitioners? Research undertaken with another person provides the framework for personal growth. Kompf and Bond (2001), in their discussion about reflective practice, state “collaborative studies are more important and revealing than mere descriptions of reflective
applications” (p. 56). Collaboration provides a sounding board for reflection as well as a second opinion on that reflection. Kompf (1993) writes of the possibility that collaborative reflection may uncover deeper meaning in the reflection. “This type of research interaction involves higher levels of meaningful exchange” (p. 519).

Of greatest significance is the fostering of trust between researcher and participant such that the participant will feel comfortable engaging in reflection in the collaborative setting. Stofflett (1998) writes about the “development of trust based on a shared commitment requiring both parties to take upon risk to induce a freedom to challenge each other’s ideas; to hear the other more fully so as to understand more deeply” (p. 3). This match may be tied to a similarity in belief structures, although as Kelly (1955) notes, “while a common or similar background tends to make people see things alike and to behave alike, it does not guarantee harmony” (p. 95). Kelly goes on to suggest that “each must have some understanding of the other. This is different from saying each must understand things in the same way as the other” (p. 99).

Mullen (2000) further reports on the empowerment that is possible through collaboration. “The collaborative…model…is practitioner centered, experiential and research oriented, reflective, and empowering” (p. 4). It is the potential for learning not only about the task at hand and the people with whom the participant must interact, but also the learning about self that makes collaborative action research empowering.

Whitford et al. (1997) provide a clear summary of the presumed benefits of participating in collaborative action research.

First, when teachers engage in the kinds of activities that action research promotes, they begin to value research as a process. And, when teachers have
opportunities to use a research process to explore questions arising from their own practice and experience, they develop ownership in the insights gained. Once those insights are shared with others, those engaged in action research can develop positive attitudes about the value of public warrant for what had previously been privately held beliefs and practices. And further, a shared research experience can promote collegiality and experimentation. (p. 152)

The benefits of collaboration can apply when including persons other than the researcher in the reflective process. The researcher is not the only person who can provide a sounding board for reflection on action. “Action research... therefore precipitates collaborative involvement in the research process, in which the research process is extended towards including all those involved in, or affected by, the action” (Carr & Kemmis, 1986, p. 199). Students, teaching assistants, colleagues, faculty developers, and administrators can all play roles as collaborative partners and thus contribute to the communicative learning process.

Collaborative partnerships may provide an ideal framework for co-construction of knowledge. The symbiotic nature of these relationships may help overcome practitioner isolation, while at the same time facilitate the achievement of individual and mutual goals.

Challenges of Collaboration

Collaborative research has become popular in school settings. As with any methodology choice, researchers and participants must make their own careful decisions about what is involved in this style of research. “Reform initiatives have pressed teachers toward collaboration and collegiality with a fervor that far outstrips our present
understanding of the conditions, character, and consequences of such relationships” (Little & McLaughlin, 1993, p. 2).

With any added project comes additional work load for the practitioner, which will likely be added to an already overfull schedule. Not only may reflection time and meetings be difficult to fit into the available time, they may take longer than anticipated by both participant and researcher. “Typically, the interviews had taken considerably longer than originally agreed, and certainly beyond the time the busy interviewee had intended to set aside” (Chivers, 2003, p. 8).

Another chief concern with collaborative action research is the possibility that the work will be owned by the researcher rather than by the participant. “When ‘facilitators’ work with teachers and others in establishing teacher-research projects, they often create circumstances under which project control is not in teachers’ hands” (Carr & Kemmis, 1986, p. 202). This is not in keeping with the spirit of action research, which seeks to involve the participant in the research and progressively to hand control over to the researcher. “Lewin documented the effects of group decision in facilitating and sustaining changes in social conduct, and emphasized the value of involving participants in every phase of the action research process” (Carr & Kemmis, p. 163). This shared responsibility is key to the process of collaborative constructivism. Kompf (1993) writes that “co-determination of processes and procedures emphasize the collaborative spirit between research and study participants. Imposition of meaning on research protocols becomes a shared responsibility between co-scientists” (p. 519).

Similarly, problems can arise when partnerships are forced. The challenges of forced collaboration are referred to by Schutz and Abbey (2001), who write that “mentors
imposed on others...may be unsuited to their role or to the personality of the protégé" (p. 162). A match of some combination of beliefs, vision, or personality may be key to a successful collaboration such that partners are not frustrated by the disparity in their goals. Richards and Murray (2001) refer to the words of a participant in their study of collaboration. “I have to feel comfortable with the individual first, before I’m willing to work collaboratively” (p. 212).

Mitchell and Sackney (2000) talk about the role of leaders in instigating change processes and how facilitation is key to the success of the process. “The leaders can certainly facilitate and advise, but their role is to facilitate the process, not to control it. They support the transition and they encourage it, but they do not manipulate it” (p. 136). Their comments apply equally to the researcher’s role in collaborative action research partnerships wherein clear discussion at the start of the research process is needed to avoid goal conflict between researcher and participant.

Questions of how the research is to be done, what is to be done and who is to do it perhaps need to be preceded with opening such questions for discussion, uncovering various meanings and interpretations people hold about the process, their positions, expectations and so forth. (Smits, 1988, p. 19)

Clear negotiation of roles and goals will be critical to the success of the collaborative venture, but not everyone is an effective negotiating partner. Some may have difficulty expressing or even understanding personal aims, while others may feel powerless against an older, more experienced, or simply more forceful partner. In addition, goals may (and perhaps should) change throughout the process; this change may not always be immediately apparent to the collaborators. As Mitchell (2001) points out,
“from both a psychological and sociological perspective, it is probably safe to assume that the original purpose of a study or the initial collaborative planning will seldom, if ever, suffice” (p. 32). Roles and goals must be revisited throughout the process, and all collaborative partners must be attentive to their changing nature.

There may also be a question as to whether the success of the partnership means that the individuals have difficulty functioning independently. The participant(s) may grow to enjoy the collaborative process so much that, without the researcher present as sounding board, the participant(s) are unable to carry on. “The school staffs clearly were pleased to carry on hours of professional thought and talk with the university consultants - but the talk ended when the consultants left” (Foshay, 1994, p. 321).

Whitford et al. (1997) present room painting as a metaphor for the usual roles of practitioner and consultant researcher. While practitioners are often in the situation of acting without planning that action or reflecting upon it afterwards, “researchers must spend their lives saying, ‘ready... ready... ready’... it’s sort of like thinking about what colour to paint a room but never getting to paint it” (p. 165). To extend their metaphor, in contrast, practitioners might spend significant time throwing paint on a canvas and hoping the effect will be pleasing. The goal in collaborative research is to strengthen the connections between the two.

In summary, what collaboration brings to the research process is “a co-enquirer who could address complexities of teaching alongside the mentee within a spirit of open enquiry” (Stofflett, 1998, p. 3). Clear negotiation of roles before beginning the process can assist in strengthening the relationship and avoiding difficulties. Carr and Kemmis (1986) go on to outline the researcher’s role as facilitator of this process. “Thus, the
facilitator’s role is Socratic: to provide a sounding-board against which practitioners may try out ideas and learn more about the reasons for their own action, as well as learning more about the process of self-reflection” (p. 203).

Emancipatory Learning

The term *emancipatory learning* (Mezirow, 1991) implies learning that results in new freedom for the learner. This newfound freedom may come about through empowerment through knowledge gain or freedom from previous constructs. In either case, a form of transformation has taken place in the learner. It is through examination of existing constructs that the transformation occurs. As Kreber (2003) proposes, “one may argue that when faculty critically question why they have certain goals and purposes they engage in emancipatory learning” (p. 293). As soon as practitioners examine their practice with a view to improvement, they open the doors to emancipatory learning. “Our emancipatory interests come from our desire to grow and develop. People are interested in self-knowledge, self-awareness, and an understanding of how their past has shaped their way of being” (Cranton, 1996, p. 20).

Reflective Practice

Reflective practice is a form of critical problem solving that provides a framework for practitioners to critically examine their professional practice. It addresses how practitioners identify areas of focus for improvement, and it addresses how that planned change will be achieved.

Problem solving is a process in which capable individuals attempt to make sense of a challenging situation, identify areas of practice needing scrutiny, define goals
for improvement, and pursue actions to accomplish them. Reflective practitioners use this process to modify and enhance their understanding of professional practice. The end result of problem solving is reconstruction of knowledge. (Yost et al., 2000, p. 40)

Successful implementation of new teaching strategies requires examination of those strategies and reflection on how to improve them. This is particularly true when working with rapidly changing instructional technologies.

For many professionals the rate of learning, development and hence improvement in professional competence is at best modest. Indeed, in times of rapid change in many fields of work, one can imagine professionals who are neither learning by highly structured purposeful means, such as course attendance, nor by meaningful reflection, actually becoming less competent over time. (Chivers, 2003, p. 5)

Without reflection on practice, there would be no opportunity for planned improvement, and the possibility exists that practitioners would stagnate through lack of professional growth. Cranton and King (2003) write of the importance of reflection in practice.

If we do not consciously think about and reflect on our practice, we become nothing more than automatons following a dubious set of rules or principles – rules or principles that are unlikely to be relevant in the ever-changing, complex context of teaching and learning. (p. 32)

Reflection also benefits personal growth. Craig (1995) writes about the essential need for reflection. “What is missing in the classroom is a place for teachers to tell and retell their stories of teaching. The classroom can become a place of endless, repetitive, living out of stories without possibility for awakenings and transformations” (p. 13).
Connelly and Clandinin (1995) talk about Dewey's notion that reflection is a natural human condition. "One lives, looks backward and forward, and then lives again" (p. 156). Without reflective practice, without taking time to examine classroom strategies and beliefs about teaching, it may be difficult to evaluate teaching success. Enerson (2001) reinforces this idea. "The notion of teacher as performer...persists unexamined into the classroom...we lose sight of the real goal of the educational process — fostering student learning" (p. 9). Reflection allows practitioners to come to understand their teaching success and where they may benefit from further development. "The primary benefit of reflective practice for teachers is a deeper understanding of their own teaching style and ultimately, greater effectiveness as a teacher" (Ferraro, 2000, p. 2).

Faculty members may be encouraged to produce results about their subject, but seldom about their teaching. Research may have a relationship to what we are teaching, but research about why we are teaching the way we are teaching may have little place.

As one would expect from the hierarchical model of professional knowledge, research is institutionally separate from practice, connected to it by carefully defined relationships of exchange. Researchers are supposed to provide the basic and applied science from which to derive techniques for diagnosing and solving the problems of practice. Practitioners are supposed to furnish researchers with problems for study and with tests of the utility of research results. (Schön, 1983, p. 26)

A benefit of reflective practice is that it can facilitate stronger connections between theory and practice. Carr and Kemmis (1986) suggest it is a myth that practitioners are concerned solely with teaching strategies and researchers solely with theories.
The twin assumptions that all ‘theory’ is non-practical and all ‘practice’ is non-theoretical are, therefore, entirely misguided. Teachers could no more teach without reflecting upon (and hence, theorizing about) what they are doing than theorists could produce theories without engaging in the sort of practices distinctive of their activity. ‘Theories’ are not bodies of knowledge that can be generated out of a practical vacuum and teaching is not some kind of robot-like mechanical performance that is devoid of any theoretical reflection. (p. 113)

Undertaking reflective practice supports continuous improvement and lifelong learning. “Reflection on one’s own experiences is the only way to improve one’s teaching... learning is a process that continues throughout one’s career” (Yost at al., 2000, p. 43)

Although the term “reflective” may carry connotations of passivity, “practice” is part of the equation. Tomkinson (2002) highlights the active nature of reflective practice. “Thinking about what we do is not sufficient; for reflective practice we must be acting upon our thinking and evaluating the results of our action” (p. 1). Similarly, Carr and Kemmis (1986) discuss the combination of factors that form reflective practice in action research.

There must be ‘a process of enlightenment’ by which participants in a situation reach authentic understandings of their situation, and a ‘practical discourse’ in which decisions are taken by participants about appropriate courses of action which are agreed to be wise and prudent. (p. 158)

Schön (1983) talks about the difference between reflection-in-action, wherein practitioners are able to make quick decisions predicated on their accumulated skills and knowledge in an area of practice which result in fairly immediate adjustment to a given
situation to improve the outcome, and reflection-in-practice, which sees practitioners thinking about events afterwards and reflecting back on ways to improve the outcome for the next iteration.

Learning through reflective practice is about more than just thinking; reflective practice requires a journey through Schön’s (1983) model of reflective practice (see Figure 1). The complete cycle of act-observe-reflect-plan matches the cycles of experiential learning and those of action research. All three have their roots in work by Lewin done in 1946 (Carr & Kemmis, 1986; Kemmis & McTaggart, 1982; Kolb, 1984). There cannot be reflection without accompanying action upon which to reflect, and practitioners cannot test the results of their reflection without applying them in new action. It is only by moving through all the stages and combining knowing-in-action and reflecting-in-practice (Schön, 1983) that practitioners can realize learning through action.

Thus it is progress through the stages that generates learning in reflective practice. “What is clear...is that the ways in which individuals emerge with professional development involve a complex negotiation of the relationship between reflective and active components” (Clegg, Tan, & Saeidi, 2002, p. 145). Whitford et al. (1997) talk about these same two themes of action research. “One theme concerns the relationship between reflection and action. A second theme emphasizes collaboration as a means of linking reflection and action.” (p. 151). This linkage represents the learning that is possible through action research, or what I have termed learning-in-action.

Transformative Learning

While reflective practice is not necessarily transformative, reflection certainly can lead to transformation. “Emancipatory knowledge is knowledge gained through critical
Figure 1. Reflective practice and action research cycle

(adapted from Schön, 1983)
self-reflection” (Mezirow, 1991, p. 87). When practitioners reflect on their teaching practice, this can lead to new understandings of both their teaching and themselves. “As a result of their experiences as teachers and learners, [practitioners] construct beliefs and images regarding the nature of their roles as teachers….these cognitive constructs…may affect their ability to change” (Briscoe, 1993, p. 971).

Without change, there would be no improvement. “There are several reasons why teachers should participate in action research. The first reason is that it facilitates improvement via change in the classroom” (Royer, 2002, p. 234). This change improvement is critical to professional practice. “For teachers to transform their practice...they must undergo a process of pedagogical conceptual change themselves” (Stofflett, 1998, p. 2). We seek change because we seek improvement, and such improvement depends upon change.

Change takes time. Remembering this and allowing time for reflection about the change and opportunities to talk about the change is important. Newton, Nash, and Ruffin (1996) offer a brief illustrative story.

Above the entrance of a covered bridge is written, ‘Cross this bridge at a walk.’ Single travelers on horseback surely were tempted to race through the bridge, but we could not hurry this process. Change takes time. Crossing at a walk slowed us down, allowing the time for conversation and reflection. (p. 84)

This fits with Prochaska’s transtheoretical model of change, which “assumes that people go [through] these stages at their own pace. Change is a cycle. [Practitioners] may enter the cycle numerous times before a change is made” (K. Parker, personal communication, 2002). Mitchell and Sackney (2000) echo this concept in their discussion of the organic
nature of change. While their discussion is about educational organizations, an organic change model can equally apply to individual change.

Educational change... can (and probably should) be... nudged in particular directions, [but] cannot be forced into unnatural shapes or prodded in unnatural directions. It is a life force and, like any other life force, it will flow as it should, given sufficient support and sustenance to do so. (p. 133)

Change is both necessary and inevitable; it is therefore essential for practitioners to devise means of surviving change. “In their attempts to make sense of the chaos they confront on a daily basis, [postsecondary] teachers must evolve new meaning schemes and perspectives for the sake of survival” (Brookfield, 1995, p. xv). It is the evolution of these new constructs that leads to emancipation.

Cranton (1994) discusses how reflection can turn into transformation through the questioning of constructs. “As soon as the learner asks why, her reflection begins taking place on the level of a meaning perspective rather than a meaning scheme. Asking why takes account of the larger framework within which an assumption exists” (p. 67). It is this questioning of assumptions that distinguishes the emancipatory aspect of reflective practice. Mezirow (1991) writes about the emancipation possible through reflection. “Reflective learning involves assessment or reassessment of assumptions. Reflective learning becomes transformative whenever assumptions or premises are found to be distorting, inauthentic, or otherwise invalid” (p. 6).

It is this type of transformative learning that results in empowerment of the practitioner. Assumptions are questioned and replaced with new perspectives that are more in keeping with the practitioner’s revised constructs. According to Mackeracher
(1996), "empowerment involves a two-phase process. This two-phase process includes: (1) growing in personal confidence and (2) acting congruently with one's own knowledge and values" (p. 233). In order to undergo transformative learning, practitioners must be prepared for change and must be patient regarding the change process.

Chapter Summary

Mezirow's (1991) model of learning perspectives frames the learning that practitioners may undergo as they engage in examining their practice. Practitioners begin with an underlying philosophy towards teaching and then demonstrate instrumental, communicative, and emancipatory learning. Instrumental learning occurs as a result of critical evaluation of teaching strategies and environment. In this study, instrumental learning refers to learning gained about implementation of online learning communities as well as the environmental factors that affect that process. Communicative learning occurs as a result of interactions with others. This mode of learning concerns insights that arise not necessarily about our interactions with others but rather through those interactions. Collaborative partnerships can support practitioner learning by providing a sounding board and structured learning opportunities. Emancipatory learning results when practitioners examine their theories and practices through reflective practice. As Mezirow states, "emancipatory knowledge is knowledge gained from our self-reflection" (p. 87).

Reflective practice that can lead to this type of transformative change will "need to challenge our own deepest thinking and to do so in the company of others engaged in the same work" (Cambridge, 2001, p. 15). Collaborative action research can strengthen
the personal and professional growth inherent in reflective practice that leads to transformation.
CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

The purpose of this study was to examine the reflective practice as exemplified by one participant’s learning as she worked to develop online learning communities as an additional component in a face-to-face course. Collaborative action research cycles allowed practitioner and researcher to reflect on practice and to work together to plan future action, and provided a close match with the study purpose. In this chapter, I will outline the rationale for the chosen research methodology; the progress of the study, including participant selection, data collection, and data analysis; and methodological assumptions, limitations, and ethical considerations.

Rationale for Research Methodology

The research design followed that of a grounded theory study using the process of collaborative action research. Grounded theory describes a process in which the analysis of the raw data leads to a conceptual theory. Leedy and Ormrod (2001) characterize grounded theory as “least likely to begin from a particular theoretical framework. On the contrary, the major purpose of a grounded theory approach is to begin with the data and use them to develop a theory” (p. 154). Grounded theory studies represent a partnership between theory and practice, which is summarized by Mitchell (1995): “The general approach is to suggest that theory be used to bring insights to the experience of the teachers, and that the experiences of the teachers be used to modify the theory” (p. 59). A grounded theory study is an appropriate match for this action research study, as action research aims at “deriving theory through the use of multiple stages of data collection and interpretation” (Leedy & Ormrod, p. 114).
Collaborative action research is similarly generative: That is to say, specific directions to pursue in subsequent phases are uncovered as the research progresses. The study must be viewed through a lens of theory-building rather than one of theory-testing. Royer (2002) articulates the unique approach of this type of research: “Unlike traditional hypothesis-based research, the research question emerges as action research progresses” (p. 235). Themes of significance emerge through data analysis. While some of these themes are expected to derive from the study purpose, others emerge from the data.

Action research, according to Leedy and Ormrod (2001), is a “type of applied research that focuses on finding a solution to a local problem in a local setting” (p. 114). In this way, action research focuses on a specific issue, with a specific sample, and seeks to find an answer that can inform subsequent practice. In the case of this study, the local problem can be stated as, “Can online learning communities be implemented in a large science course and used as a strategy to encourage student communication?” Action research is intended to lead to praxis, or improvement in practice. Carr and Kemmis (1986) write about the three purposes of action research.

Action research aims at improvement in three areas: firstly, the improvement of a practice; secondly, the improvement of the understanding of a practice by its practitioners; and thirdly, the improvement of the situation in which the practice takes place. The aim of involvement stands shoulder to shoulder with the aim of improvement. (p. 165)

The aims of action research also link it closely to the theoretical framework for the study. Grundy (1988) writes about the three different modes of action research: technical, practical, and emancipatory. Technical action research seeks to improve the
teaching strategies; practical action research includes the idea of improvement incorporating the participant’s knowledge gain (possibly through collaboration); emancipatory implies action research that can improve more than the single situation at hand.

This leads to a further aspect of action research, which is the empowerment of those involved as participants. Empowerment can be viewed in terms of improvement in conditions for those who may have been marginalized; it can also be viewed in terms of knowledge gain. Grundy and Kemmis (1981) summarized these two purposes: “There are two essential aims of all action research activity: to improve and to involve” (p. 84). This parallels the framework of critical theory in that empowerment is promoted as the study proceeds (Carr & Kemmis, 1986). In this study, a critical theorist perspective seeks to empower the participant through knowledge gain—both in improvement to professional practice and in self-awareness.

My own background in faculty development and my approach of collaborative reflective practice attracted me to the methodology of action research. Collaborative research allows researcher and participant(s) to act as each other’s sounding boards, bringing fresh perspectives to interpretations of practice and data.

The opportunity for collaboration between the researcher and the participant is what has brought strength and breadth to this process. Interpretations made from the data were examined by both, and plans for further practice benefited from collaborative brainstorming. This collaborative relationship brings together divergent perspectives and acknowledges the fundamental truths in each. Leedy and Ormrod (2001) summarize perspectives from Creswell (1998) and Guba and Lincoln (1988) regarding this point.
Many qualitative researchers believe that there isn’t necessarily a single, ultimate Truth to be discovered. Instead there may be multiple perspectives held by different individuals, with each of these perspectives having equal validity, or truth” (p. 147).

The symbiotic relationship between researcher and practitioner has been useful for reducing the blindfold of perceptual filters, which Noffke (1995) has cited as one of the drawbacks of practitioner action research: “Action research may help practitioners ‘to know’ that their practice is successful. Yet...it may only reveal those parts of education that they are positioned to see” (p. 7). Collaboration in the research process seeks to diminish this natural limitation by providing a continual process of review and feedback between researcher and participant. At the same time, research by outsiders runs, by its very nature, the risk of being divorced from the reality of the participants’ perspectives. Lomax argues, “Any definition of change or improvement ought to be determined by the participants whose lives are affected by the study” (cited in Mitchell, 1995, p. 74). Accordingly, the application of collaborative action research is ideally suited to this study, whereby researcher and participant constructed knowledge through collaboration.

Research Design

The research design for this study followed Kemmis and McTaggert’s (1982) “four moments of action research” which are “plan, act, observe, and reflect” (p. 7). The model they present is a series of cycles of the following four steps:

1. Plan—researcher and participant create a strategic plan for implementation that empowers participant (educator) to be more effective (p. 8).
2. Act–participant implements the plan, allowing flexibility and openness to change (p. 9).

3. Observe–participant observes and documents the effects of the action on practice. Observations relate to planned categories, but are responsive and open-minded (p. 9).

4. Reflect–researcher and participant reflect on their insights through the cycle. “Through discourse, reflection leads to the reconstruction of the meaning of the social situation and provides the basis for the revised plan” (p. 9).

The plan, act, observe, and reflect stages of action research are from the same root as those of Kolb’s experiential learning cycle, in that both have evolved from early action research conducted by Lewin in 1946 (Carr & Kemmis, 1986; Kemmis & McTaggert, 1982; Kolb, 1984). In essence, action research is a series of experiential learning cycles in which participant and researcher collaborate to improve practice. Carr and Kemmis include an excerpt from Lewin describing the start of action research.

Planning usually starts with something like a general idea. For one reason or another it seems desirable to reach a certain objective. Exactly how to circumscribe this objective and how to reach it is frequently not too clear. The first step, then, is to examine the idea carefully. (p. 162)

In addition to the four stages in the cycle, Kemmis and McTaggert (1982) recommend an initial meeting, which they refer to as the “reconnaissance stage” (p. 21), to clarify goals and process or “to define the field of action” (p. 21). This term has meaningful application to each of the subsequent cycle planning meetings, as the roots of the word “reconnaissance” are both getting to know again, and rebirth (Dubois, Keen, &
Shuey, 1975, pp. 189, 226). In this way, action can be taken, observations noted, reflections made, and the idea reborn into a new plan.

The link between the stages of action research and reflective practice is equally strong. Schön defines reflective practice as “thoughtfully considering one’s own experiences in applying knowledge to practice while being coached by professionals in the discipline” (cited in Ferraro, 2000, p. 1). Elliot (1991) considers action research and reflective practice to be one and the same process. “This kind of joint reflection about the relationship in particular circumstances between processes and products is a central characteristic of what Schön has called reflective practice and others, including myself, have termed action research” (p. 50).

The participant’s role in this study was to reflect critically on the progress towards the goal of creating online learning communities. The researcher’s role was to support and participate in that critical reflection by providing a sounding board, by asking provocative questions, and by guiding the participant through the stages of action research. The researcher provided data analysis for review with the participant and guided discussion interviews around emerging themes and their implication for planning further action phases. As the study progressed, it was intended that the locus of control and responsibility for the collaborative meetings would move towards the participant, such that the participant took a greater role in guiding the reflective process and the planning stage (Mitchell, 1995, p. 248). The specifics of this process are outlined in Table 1.

The role of the researcher in action research is one of a “critical friend” who provides a sounding board for the research process. The concept originated with Carr and
<table>
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<tr>
<th>Phase</th>
<th>Research Log</th>
<th>Reflect</th>
<th>Initial Plan</th>
<th>Implement Plan</th>
<th>Communicate</th>
<th>Initial Meeting</th>
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<td>Planning</td>
<td>Reflect on process and complete theme</td>
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<td>Group and analyze data from previous meeting and prepare available</td>
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*Table 1: Participation and Researcher Roles*
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<tr>
<th>Phlebitis Research Log</th>
<th>Learning Process of Collaboration Overall</th>
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<tr>
<td>Evaluate themes and processes of collaboration for recruitment and attendance and subsequent translation (and subsequent translation) meaning</td>
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<tr>
<td>Participate in discussion as needed</td>
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<tr>
<td>Indicators success of achieving study process and reflecting on overall participant role</td>
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<tr>
<td>Reflect on overall participant role</td>
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*Study Report:*
- Review and finalize data and review
- Final review

*Data:*
- Review and finalize data and review
- Final review

*Participant Role*
- Reflect on overall participant role

*Researcher Role*
- Reflect on overall researcher role

- Details
Kemmis (1986), who describe a critical friend as someone who helps “‘insiders’ to act more wisely, prudently and critically in the process of transforming education” (p. 161). In the words of Costa and Kallick (1993), a critical friend is “a trusted person who asks provocative questions, provides data to be examined through another lens, and offers critique of a person’s work as a friend” (p. 50). Costa and Kallick summarize the responsibilities of critical friend and participant during the research cycles. Initially, the participant describes an area of practice and asks for feedback. The critical friend asks questions for clarification. The participant then sets the direction for feedback, and the critical friend provides feedback about significant points of the area of practice. The critical friend then asks further questions and critiques the work, and both critical friend and participant reflect and write about the meeting (p. 50). “The success of the work of such ‘critical friends’ is to be measured in the extent to which they can help those involved in the educational process to improve their own educational practices, their own understandings, and the situations and institutions in which they work” (Carr & Kemmis, 1986, p. 161).

This positions the researcher as an integral part of the collaborative research process, but with a clearly defined role. Leedy and Ormrod (2001) define this role. Qualitative researchers believe that the researcher’s ability to interpret and make sense of what he or she sees is critical for an understanding of any social phenomenon. In this sense, the researcher is an instrument in much the same way that a sociogram, rating scale, or intelligence test is an instrument. (p. 147)

It is the responsibility of the researcher to view that role with respect and to allow the participant’s story to be the one that is heard.
Participant Selection

The participant for this study was a female early-career assistant professor in a university in southern Ontario. In choosing a suitable participant for this study, it was important to set clear criteria for participant selection (Leedy & Ormrod, 2001). The study was not intended to be one of tracking someone attempting to learn the technology of delivering online learning, nor about overcoming faculty resistance to delivering online learning, nor about how poor teaching can be improved. Literature already exists in these areas. Accordingly, the following criteria were set:

1. The participant would have some familiarity and experience with online teaching. The purpose of this criterion is to avoid having the study become a technical ‘how to” process. The participant had taught previously using WebCT in a combination face-to-face course, although she had no prior experience of using online groups for discussion purposes.

2. The participant would have the interest and commitment to implement online learning communities, as opposed to simply “groupwork” (Hathorn & Ingram, 2002). While the researcher would take responsibility for providing supporting literature to the participant, a philosophical commitment to the idea of learning communities was critical to this study. This was in part evidenced by choosing a participant who was already considering undertaking a process of implementing collaborative online learning groups. In this way, the study would involve someone who has self-selected as being ready for the process (Mills, 2003). Clarification of the participant’s philosophy was discussed at the initial meeting, and is included in Chapter Four.

3. The participant would ideally have some experience with the process of
reflective practice. Evidence could be preparation of a teaching philosophy statement or prior experience in other forms of reflective practice. This information was solicited prior to the first planning meeting. The participant had prepared a teaching dossier, including a teaching philosophy statement, and had previously used reflective journal writing for personal development.

4. The participant would have good teaching skills. The participant would show the ability to create a positive learning environment, as demonstrated by prior student feedback, nominations for teaching awards, and other such indicators. The participant had been nominated for and awarded a number of teaching awards and regularly receives positive student feedback.

5. The participant should be teaching at an institution in southern Ontario. This criterion was established (and met) to facilitate meetings between participant and researcher.

In addition, the following criterion emerged from the literature as being integral to the methodology of action research:

6. The participant would be someone with whom the researcher could feel an ability to work, and would have to feel a level of comfort in undertaking guided reflective practice with the researcher. Action research depends on a significant level of trust and collaborative working relationship between researcher and participant, and indeed, Carr and Kemmis (1986) refer to the researcher as a “critical friend” (p. 161) to the participant. Mitchell (1995) writes that “the nature of action research would suggest that a key component of the relationship will be to establish a high level of trust and clear lines of communication between the researcher and the practitioners” (p. 58). Within the
timelines for this study, the process could occur only if such a relationship already existed, such that the initial cycle could commence without devoting time to establishing that trust. Consequently, the selected participant was to be an individual with whom the researcher had already established a good working relationship.

As the nature of this study depended on the participant, and random sampling could not guarantee a participant who would match the criteria, I undertook in the very early proposal stages to find out whether, indeed, a candidate existed who would fulfill these criteria. A number of university and college staff from academic institutions in southern Ontario were asked to recommend possible candidates. These persons consisted of faculty members and staff of centers for teaching and learning. In the end, it turned out to be someone with whom I had previously done some faculty development work who fit the study criteria.

Prior to the commencement of the study, the participant was invited to read the study proposal and make recommendations for any changes to the process. Upon her approval of the process, formal participation was sought by asking the participant to sign an informed consent form that was based on the ethical guidelines outlined by the Brock University Ethics Review Board (see Appendixes B and C).

Instrumentation

Qualitative data were collected during each of the action research cycles, as an ongoing “cyclical process of collecting data, analysing the data, collecting additional data, analysing those data” (B. Johnson & Christensen, 2000, p. 125). It is critical to the process of action research that plans for subsequent cycles are based on knowledge
gained through preceding cycles. In this regard, action research is perhaps unique in the explicit and essential link between data collection, data analysis, and further data collection.

According to B. Johnson and Christensen (2000), this approach to data collection and analysis helps researchers to “refine their developing theories and test their inductively generated hypotheses” (p. 125). In this way, earlier data collection and analysis informs the direction and the content of subsequent cycles of data collection. Data collection thus occurs over a prolonged period, such that “interviews are conducted between researcher and participant, transcripts are made... and made available for further discussion, and they become part of the ongoing narrative record” (Connelly & Clandinin, 1990, p. 5).

Methods of data collection in action research are determined by the interests of the researcher and participant and may include a variety of sources. For example, Leedy and Ormrod (2001) list, under methods of data collection, “interviews, any other relevant data sources” (p. 157). In short, it is up to the researcher, in consultation with the participant, to choose the data collection methods that best lend themselves to the researcher’s and participant’s convenience and the study purpose and that will provide the richest data for analysis. Various authors give suggestions of suitable data sources as outlined in this list:

1. Interviews and meetings with the participant (Berg, 2001; Rubin & Rubin, 1995; Van Manen, 1997).

recommends recording a description of the event and what made it significant, what made it either positive or negative, what could have been done differently by those involved, and lessons for personal practice (p. 56).

3. Fieldwork notes, allowing the researcher to track impressions throughout the research process (Connelly & Clandinin, 1990; Glaser & Strauss, 1967).

4. Portfolio of documents related to the process (Arhar et al., 2001).

The theme of variety is echoed by Walford (2001), who writes that suitable data can be "generated only through the use of multiple methods" (p. 8). Accordingly, all of the methods outlined above were used in this study, with some, interviews in particular, yielding richer data than others.

Initial data collection and reflection were oriented to the indicators of online learning communities derived from the literature, and as outlined in Chapter Two (see Appendix D). However, Schuyler and Sitterley (1995) warn that "sticking too closely to an instrument that was intended to facilitate reflection, actually interfered with the practice of reflection by influencing the [participant] to think about 'the next question' rather than the issue at hand" (p. 50). Consequently, the indicators were used to inform the participant in the early stages of the process, to guide ongoing reflections, and to suggest possible shifts in practice rather than as a concrete framework for data collection.

Data Collection

The study proceeded through a series of action research cycles of plan-act-observe-reflect. Data collection occurred during observe and reflect phases of the cycles, primarily during meetings between the researcher and participant. During these meetings,
the participant shared her observations regarding the implementation of her plan, reflected upon these observations, and made revisions to her plan. Transcribed audiotapes from these meetings and corresponding notes were the primary data sources.

1. An initial meeting between researcher and participant was used to establish and clarify shared goals for the process and to plan an initial action for implementation. During this meeting, the indicator list (see Appendix D) for creation of successful online learning communities was discussed with the participant. Questions that guided this initial interview are provided in Appendix E. The participant was asked to be mindful of the indicators of successful learning communities and to continuously reflect on the path towards achieving these indicators. She was also advised that these lists should not be viewed as comprehensive and that the generative nature of the study should yield additional indicators to be included in subsequent cycles. During this meeting, the research process and respective researcher and participant roles were clarified with the participant, and the participant’s readiness to undertake the study was confirmed. A schedule was proposed for further meetings; it was agreed that these would be timed around the student WebCT posting periods. The meeting was audiotaped and transcribed verbatim, and notes were made during the meeting.

2. A series of meetings between researcher and participant were conducted during the study period to serve as reflect and plan stages of each cycle. An informal question list guided each of these meetings (see Appendix E), although in keeping with the semistructured format, other paths of inquiry were pursued as suggested by participant comments. At each meeting, researcher and participant reviewed the plan, act, and observe stages of the cycle and examined the participant’s progress against the study
indicators. Raw data collected from previous cycles, data summaries, and emerging categories and themes were reviewed and became the basis of questions in subsequent meetings. Meetings were audiotaped and transcribed verbatim, and notes were made during the meetings.

3. The participant was provided with a blank journal and was asked to record insights around any aspect of the process, and in particular, "experiences in... carrying out action research" (Stevenson et al., 1995, p. 61), which in this case was her progress towards implementing online learning communities and factors that affected that path. A list of suggested framing questions for journal entries was provided to the participant (see Appendix F). The participant was advised to consider this list to be a starting point only and to explore any other issues or directions that arose.

4. The researcher also kept a research log and reflective journal to track issues, challenges, and insights that arose during the period of data collection. In particular, questions arising from the raw data were recorded for inclusion in subsequent meetings. Notations were made during all phases of all cycles.

5. In addition, the participant was asked to keep a portfolio of any documents relating to the plan implementation. This portfolio included the course outline, emails from students and from the participant to students, and certain WebCT pages.

6. A final interview was held to consider the degree to which goals and indicators were met, to review the process of reflective practice and collaboration as applied to implementing online learning communities, and to discuss the participant's overall learning. A set of questions developed from Lock and Munby (2000) was used to guide this interview (see Appendix E), and additional questions were added that arose from
previous data collection and analysis.

Table 2 sets out the chronology of the research process, following the plan, act, observe, reflect, plan cycle. The time lapse between the last reflection cycle and the date for the final interview was intended to accommodate end-of-term review and exams and to allow the participant time to include these activities in reflecting on the overall process.

Initially, six cycles of practice had been planned, but that was adjusted to five to accommodate a delayed start in getting students online and into group discussions as well as to adjust to the ongoing student discussion deadlines. Each meeting ended with the setting of the subsequent meeting date. The date for the final interview was negotiated with the participant after the end of term.

A critical point in a grounded theory study is knowing when to stop. As the process continually evolves, there is no inherent endpoint. While the goal of the process is an improvement in practice, such that the participant moves closer to achieving the indicators, there was no guarantee that all would be attained, nor over what time period that might occur. In order to establish an end to this study, the end of the fall term (2003) was chosen as the end of data collection. The final meeting with the participant took place January 17, 2004, and it was after this meeting that the final analyses were conducted.

Data Processing and Analysis

In a grounded theory study, data analysis and classification of categories begin almost immediately. Leedy and Ormrod (2001) describe this process: “Subsequent data
null
Table 2

Timelines for Action Research Cycles

<table>
<thead>
<tr>
<th>Cycle</th>
<th>Date</th>
<th>Cycle stage</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td>Sept 15</td>
<td>Pre</td>
<td>First meeting. Negotiated process. Discussed indicators.</td>
</tr>
<tr>
<td>1</td>
<td>Sept 15</td>
<td>Plan</td>
<td>Plan for first cycle.</td>
</tr>
<tr>
<td></td>
<td>Sept 15-Oct 1</td>
<td>Act</td>
<td>Participant implements first stage of plan.</td>
</tr>
<tr>
<td></td>
<td>Sept 15-Oct 1</td>
<td>Observe</td>
<td>Participant makes journal entries re: effects of plan.</td>
</tr>
<tr>
<td></td>
<td>Oct 1</td>
<td>Reflect</td>
<td>Meeting to discuss observations, effects of plan.</td>
</tr>
<tr>
<td>2</td>
<td>Oct 1</td>
<td>Plan</td>
<td>Review data, revise goals per observations and insights.</td>
</tr>
<tr>
<td></td>
<td>Oct 2-Oct 21</td>
<td>Act</td>
<td>Participant implements second stage of plan.</td>
</tr>
<tr>
<td></td>
<td>Oct 2-Oct 21</td>
<td>Observe</td>
<td>Participant makes journal entries re: effects of plan.</td>
</tr>
<tr>
<td></td>
<td>Oct 22</td>
<td>Reflect</td>
<td>Meeting to discuss observations, effects of plan.</td>
</tr>
<tr>
<td>3</td>
<td>Oct 22</td>
<td>Plan</td>
<td>Review data, revise goals.</td>
</tr>
<tr>
<td></td>
<td>Oct 23-Nov 3</td>
<td>Act</td>
<td>Participant implements third stage of plan.</td>
</tr>
<tr>
<td></td>
<td>Oct 23-Nov 3</td>
<td>Observe</td>
<td>Participant makes journal entries re: effects of plan.</td>
</tr>
<tr>
<td></td>
<td>Nov 4</td>
<td>Reflect</td>
<td>Meeting to discuss observations, effects of plan.</td>
</tr>
<tr>
<td>4</td>
<td>Nov 4</td>
<td>Plan</td>
<td>Review data, revise goals.</td>
</tr>
<tr>
<td></td>
<td>Nov 5-Nov 18</td>
<td>Act</td>
<td>Participant implements fourth stage of plan.</td>
</tr>
<tr>
<td></td>
<td>Nov 5-Nov 18</td>
<td>Observe</td>
<td>Participant makes journal entries re: effects of plan.</td>
</tr>
<tr>
<td></td>
<td>Nov 19</td>
<td>Reflect</td>
<td>Meeting to discuss observations, effects of plan.</td>
</tr>
<tr>
<td>5</td>
<td>Nov 19</td>
<td>Plan</td>
<td>Review data, revise goals.</td>
</tr>
<tr>
<td></td>
<td>Nov 20-Dec 2</td>
<td>Act</td>
<td>Participant implements fifth stage of plan.</td>
</tr>
<tr>
<td></td>
<td>Nov 20-Dec 2</td>
<td>Observe</td>
<td>Participant makes journal entries re: effects of plan.</td>
</tr>
<tr>
<td></td>
<td>Dec 3</td>
<td>Reflect</td>
<td>Meeting to discuss observations, effects of plan.</td>
</tr>
<tr>
<td>Post</td>
<td>Jan 17</td>
<td>Post</td>
<td>Deconstruction interview to review process and insights.</td>
</tr>
</tbody>
</table>
collection is aimed at saturating the categories... and at finding any disconfirming evidence that may suggest revisions in the categories identified or in interrelationships among them” (p. 154). In this way, the study begins with data collection and moves quickly to data analysis, which then drives subsequent data collection in a process of continual category development and refinement. This process is known as the constant comparative method (Leedy & Ormrod, p. 168). These stages fit well with the cycles of action research. Data collection occurs as the participant writes observations and shares these with the researcher in the reflection stage. Preliminary data analysis is conducted during the reflection process, and the results are incorporated into the planning stage for the next cycle so as to illuminate theory and to plan for further practice. In this way, practice informs theory, which in turn informs subsequent practice as the cycles proceed.

Categories were not, however, used as a deductive analytic framework because of the danger of preselecting theories and categories when conducting grounded theory research, as noted by Merriam (1998) in the following passage:

Merely selecting data for a category that has been established by another theory tends to hinder the generation of new categories, because the major effort is not generation, but data selection. Also, emergent categories usually prove to be the most relevant and the best fitted to the data. (Glaser & Strauss, cited in Merriam, p. 183)

Instead of relying on the indicators to analyze the data, categories that emerged from the data were used to illuminate and address the purpose of the study. Merriam (1998) reminds researchers that “categories should reflect the purpose of the research. In effect, categories are the answer to your research question(s)” (p. 183). As Merriam
clarifies, "devising categories is largely an intuitive process, but it is also systematic and informed by the study's purpose, the investigator's orientation and knowledge, and the meanings made explicit by the participants themselves" (p. 179).

Data analysis proceeded with the following inductive analytic strategies as part of the ongoing process of cycles of action research. Data entries in each meeting and interview transcript were encoded using a system of date and page identifiers. As there was only one participant, all entries used represent that individual.

Each meeting/interview was analyzed and data excerpts were grouped using an inductive method that began "with specific observations and [built] towards general patterns" (Patton, cited in Lock & Munby, 2000, p. 270). Individual units of data were initially labeled directly on the transcripts, and compelling or frequently occurring themes were highlighted for further investigation through literature review and discussion between researcher and participant in subsequent meetings. Pattern analysis was conducted to "discover and test those linkages that make the largest possible number of connections to items of data in the corpus" (Erickson, cited in Lock & Munby, 2000, p. 270). Categories were assigned (using two to three descriptive words) such that there were "a minimum of unassignable data items" (Guba & Lincoln, cited in Merriam, 1998, p. 185). In analysing the data from the initial meeting (September 15) transcript, I organized data into the following categories: time, work load, availability of teaching assistant (TA), technical concerns, initial plan and overall goals for creating online learning communities, enthusiasm for teaching, sage versus guide, readiness for process, risk taking and anxieties, previous group and online experience, enthusiasm for student collaboration, desire for student success, benefit to students, desire for student
empowerment, desire for student convenience, up-front clarity to students, feedback to students, and human element online. I recognized that this was a large list and that there might easily be significant overlap, but I decided to wait to see what further categories I might derive from the subsequent interviews.

The analysis of the second interview (October 1) transcript resulted in a few changes to my categories. My revised list, based on the participant’s comments during the second interview, included: enthusiasm (success), invitation to students, clarity up front with students, support for students, student to student connection, reasons for student participation, reflection on initial plan, learning about creating communities, work load, time, interaction with researcher, interaction with TA, developing patience, sage versus guide, anxiety, technology, journal, and intent versus action. This list seemed overwhelmingly long, and so I retyped significant data entries under the category headings and created a table of contents that allowed new data pieces to be easily entered under appropriate headings. Then, using the template table of contents, I grouped these headings under umbrella themes. I continued this process for all meeting transcripts, continuing to use an inductive process to reorganize my categories and themes as new data suggested new perspectives.

Approximately halfway through the study process, I returned to the data and reviewed all the categories, themes, and corresponding data entries I had accumulated. It became evident to me as the study progressed that I was in danger of becoming bogged down in categories representing minute areas. I reread all the previous transcripts and then highlighted (colour coded) themes of significance and made margin notes, finding that much of the initial interview was confirmation of the participant’s background and
readiness rather than themes that continued through the study. Patterns through the remaining interviews were easier to discern, and once I decided to use the concept of learning to anchor my themes, it became much easier to write a summary story of the data as it evolved through the reminder of the research process. It was not until the end of the study that I discovered the close fit between Mezirow’s (1991) model and the study findings. I subsequently regrouped my themes and categories under the framework of teaching philosophy, instrumental learning, communicative learning, and emancipatory learning. B. Johnson and Christensen (2000) suggest a chart format may be useful to outline themes and their related categories (p. 36); a chart demonstrating that relationship for this study may be found in Appendix H.

Themes and interpretations were explored in additional literature review, resulting in a pattern of continuous growth as the data collection and analysis proceeded and observations were fed back into subsequent meetings. Once the final interview was complete, I returned to the data and read through all the transcripts as a set twice to confirm my theme choices and to seek data that did not fit within these broad concepts.

Entries from the participant’s journal were coded and grouped in the same manner to ascertain common or significant themes. They were analyzed by constant comparison for themes that paralleled interview data, as well as those that were compelling in nature. This analysis helped create a platform for further discussion at the subsequent cycle planning meeting. In addition, I kept a research log and reflective journal of the study process. Emergent themes, observations of the study process, and questions that arose (see Appendix G) were incorporated into subsequent cycle meetings. The journal also served as a place for me to note insights that arose during the meetings with the
participant and during subsequent analysis.

All categories derived from the raw data were tested against data collected in each mode of interview and reflective journal entries and were returned to the participant for verification. The participant confirmed all categories. All emergent themes and interpretations were also confirmed in consultation with the participant and checked against all data to uncover any contradictory evidence. The participant read the final analysis and was given opportunity to identify any parts that did not match her understanding of the data. While the participant did ask for one or two potentially identifying data excerpts to be either excluded or written such that they would be more generic, she did not disagree with the presentation and interpretation of the data.

The data were used to substantiate all observations. In this way, any interpretations are grounded in the data. While this technique is important in any analysis of qualitative data, it becomes critical in the circumstance where there may be an existing close working relationship between researcher and participant. Thus, any insights inferred were accepted only if conclusive evidence could be identified from the data collected.

Methodological Parameters

Collaborative action research by its very nature is subject to a number of assumptions and limitations. Assumptions were made for this study that implementation of the participant’s plan would not adversely affect the students’ learning and that the participant would be able to engage in cycles of reflective practice as she implemented her plan. Limitations exist insomuch as the study involves a single participant and the timeline was fairly short. Issues pertaining to technology and gender were not included in
the study, nor were the researcher's perspectives allowed to intrude on the participant's perspective.

Assumptions

The study began with the assumption that online learning is in itself beneficial to students, or at least not detrimental. Kassop (2003) writes of ways in which online education excels by allowing for student-centered learning, writing practice, interactive discussions, flexibility, and a community of learners. Similarly, Salmon (2002) contends that students benefit from asynchronous online learning by being able to participate at their convenience, as well as from synchronous learning by being able to meet regardless of geographical location.

The study further assumes that learning in communities in which participants share responsibility for learning is beneficial or at least not detrimental to students. This assumption is evident in Jacques's (2000) statement that "the vast majority of students prize the sense of belonging which small groups afford them and the chance to test their understandings with their peers" (pp. 9-10).

It was also assumed that the participant would be able to undertake reflective practice that would result in a change in teaching practice and demonstrable learning about the process. In addition, it was assumed that the researcher would be able to act as a facilitator of this process.

It is further noted that there were multiple sites of collaboration within this study. Collaboration occurred between the students in the online learning communities, between the participant and her students, between the participant and her teaching assistant, and also between the participant and the researcher. While each of these interactions
embodies the underlying principles of collaboration (see Appendix A), where separation is essential for understanding of the dynamics involved, the specific situation has been clearly articulated. In all other places where reference is made to collaboration, it is intended to refer to the inherent underlying principles.

Limitations

Limitations to this study included the purposive sampling, as different participants would likely have generated different perspectives. At the same time, the sampling was also a strength for this particular study, as a match with the participant selection criteria was essential to the study purpose. No attempt was made to collect data from students, and indicators for the study purpose did not depend on direct access to student data. Student feedback is sometimes used as a means of data collection (Mills, 2003), and the participant had access to student feedback, grades, and online discussion postings. This study, however, in focusing primarily on the reflective process of the participant instructor, made no attempt to collect data from students or any persons other than the participant. This decision was made because of the logistical concerns involved in collecting data from students and also because the primary focus of the study is on the reflective path of the instructor participant. What would be part of the study was the ways in which the participant chose to collect data from the students in order to inform her reflective path.

Issues related to technology have not been included because, as discussed in Chapter Three, this was not intended to be a study of the process of how to implement the changes but rather an investigation of the factors affecting the learning path towards changes being implemented. In the early stages of the study, the participant focused on
technical issues of how to set up the discussion groups, how to summarize data, and how to find tools in WebCT that would be helpful to students and to the participant. Further, a significant amount of time in the first two interviews was spent in clarifying and negotiating the study purpose and indicators. The specifics of the discussion are not seen as being as important to the purpose of this study as the time spent. Certain participant comments made in the ground-setting meetings are included as they support other themes of significance.

Another limiting factor was my own involvement in both online teaching and faculty mentoring and the need to keep biases out of the study. To minimize the effects of this limitation, research questions were based on the literature rather than on my personal experience (Siedlaczek, 2001, p. 71), and further questions came from the raw data of the participant’s experience. My participation was limited to the reflect and plan stages of the action research cycle, with control and direction of these stages moving to the participant as the cycles progressed. The intention was that it would be the voice of the participant that would emerge, with my role limited to data collector and interpreter.

There was the added limitation of the timeline, which was chosen for feasibility issues. While the cycles are somewhat shorter than the one-month duration recommended by Kemmis and McTaggart (1982), it was considered to be of benefit to the participant to incorporate several cycles into one academic term; specifically, the course chosen for the plan implementation was a one-semester course.

No attempt has been made to discuss issues of gender in regards to the study findings. However, it must be acknowledged that the participant is female and that is likely to be reflected in her perspective. Elliott and Woloshyn (1997) note that "women
often bring the values of caring, empowering others, listening, and responding to all their relationships at work” (p. 25).

Finally, there was the limitation inherent in using only one participant. As discussed by Mitchell (1995), “because action research projects tend to be conducted in unique settings, the results cannot be generalized, nor can they be replicated” (p.60). Practitioners must decide for themselves, after reading the description of the study context, whether the results pertain to their own setting.

Authenticity of Results

Authenticity of data in action research is more likely to be established if there are a number of data sources, such that themes can be cross-matched between various sources. Mills (2003) cites Wolcott, saying that “the strength of qualitative research lies in its triangulation, collecting information in many ways, rather than relying solely on one” (p. 52). Royer (2002) writes about the importance of following the four standards for catalytic validity set by Lincoln and Guba of credibility, transferability, dependability, and confirmability.

Credibility is established by using multiple data sources. In this study, those included meeting and interview transcripts over several cycles, reflective journal entries made by the participant, documents collected by the participant, and research notes made by the researcher, although it should be noted that the meetings yielded the largest part of the data.

Transferability refers to whether the study findings will be applicable to other situations. The opportunity for generalization of study findings is questionable in studies with a limited sample and is achieved through detailed description of the “context,
participants, and activities” (Royer, 2002, p. 235), all of which are described fully in this report. This allows readers to make decisions as to whether the study findings are applicable to their own situation.

Dependability of conclusions is checked by discussing them with colleagues; in the case of this study, the collaborative nature of the research process allowed participant comments to be revisited throughout the study in order to draw out themes of significance as opposed to those that seemed compelling in isolated circumstances. The prolonged contact achieved by continuing the study for the period of one academic term and by incorporating several cycles of action research allowed the researcher and participant to revisit themes that arose from raw data and to test perceptions in subsequent meetings. (Mills, 2003, pp. 87-88).

Finally, confirmability is established by providing evidence from the data to support any interpretations and conclusions (Royer, 2002, p. 235). Any statements that were made describing the participant’s process are grounded in the data generated by the participant. Any conclusions arising from the researcher’s own notes were checked in subsequent meetings with the participant, and if they could not be confirmed, were not included in the final report.

A further notion of catalytic validity refers to the resulting improvement in practice, or “the degree to which the research process re-orients, focuses, and energizes participants toward knowing reality in order to transform it” (Lather, cited in Mitchell, 1995, p. 59). In this study, this was measured in part by the progress towards the list of indicators for successful online learning communities but primarily by the participant’s description of her learning throughout the process.
In all research, the researcher’s biases are evident in the research; such biases show in the questions chosen, the methodology used, the interpretations of the data, and the implications arising from the data. I have been particularly aware of the possibility for bias in collaborative action research and have been careful to return all data and interpretations made from the data to the participant for verification. Nonetheless, the selection of themes and data excerpts was my choice based on my interpretations of the data.

Ethical Considerations

This study was conducted in accordance with the ethical standards set out by the Brock University Ethics Review Board, which reviewed and approved ethics documents pertaining to the study (see Appendixes B and C).

It was my intent as the researcher to be respectful and considerate of the participant at all times, as befits research involving human subjects. The inconvenience to the participant was the primary concern, and every effort was made to keep this to a minimum. It has been previously noted that the participant selection criteria indicated finding a participant who was already considering undertaking the work outlined in this study. The additional work load for the participant was the time involved in meeting with the researcher as well as the time involved in making journal entries.

Anonymity was maintained at all times. The participant’s name is not used in connection with the study, and the participant’s university, department, and position within that department are discussed in general and anonymous terms. At no time has any data been shared with persons in the participant’s institution (nor will it be in the future),
although the study report, once purged and finalized, will be made available to the institution's ethics board in accordance with their policy. Only my advisor and I have had access to the raw data, and only I know the identity of the participant.

Participation in the study was voluntary, and the participant was free to withdraw at any time or to refuse to participate in any research activities, without penalty of any kind. The participant was fully informed as to the nature of the study and was provided with a copy of the ethical guidelines for the study. The participant was also given the opportunity to review all data and interpretations, as well as an initial draft of this report, and was asked to make any changes as warranted in order to guarantee anonymity.

Chapter Summary

This grounded theory study examined the reflective practice of one professor as she attempted to implement collaborative learning groups into an online teaching component over one academic term. Through a lens of collaborative action research, the study looked at the progress towards those goals, the environmental and personal factors that affected that path, the challenges and benefits of the process of collaborative action research, and the participant's overall learning throughout the process.
CHAPTER FOUR: PRESENTATION OF FINDINGS

This study examined the reflective practice of one practitioner implementing online learning communities. The practitioner began with a philosophical and technical skill readiness for implementing the change and moved through several cycles of action research/reflective practice towards the goals. The primary goal of the study from the participant’s perspective was to move towards the indicators of effective online learning communities. The primary purpose from the researcher’s perspective was to identify personal and environmental factors that affected the participant’s learning path.

These research goals were pursued using a collaborative action research methodology, initially chosen for its close match with Schön’s (1983) model of reflective practice. It was through the reflection conversation during the planned meetings and the researcher’s re-framing and interrogation of that reflection that the participant was able to clarify and extend her thinking, and in so doing, critically reflect on her practice as she worked to develop online learning communities. In this way, the collaborative action research methodology was an embodiment of co-constructivism through collaborative reflective practice.

The participant’s learning path was consistent with Mezirow’s (1991) model of transformative learning, which begins with preexisting personal beliefs and incorporates instrumental, communicative, and emancipatory learning. Instrumental learning relates to technical knowledge, communicative learning is about interacting with others, and emancipatory learning is learning through reflective practice about self and changing beliefs. The headings from this model will, therefore, be used to frame the presentation of the results.
Beliefs

Personal beliefs about teaching, such as support for student-centered collaboration, affected the participant’s path throughout the process and subsequently her overall learning. A match between beliefs and goals is critical for successful implementation of any new teaching strategy. This section describes in brief her readiness for the project she wished to undertake and the goals she hoped to achieve and outlines her teaching philosophy vis-à-vis student-centered learning to demonstrate the match between her goals and the study indicators.

The participant came to the study with WebCT and other teaching experience. In addition, she had skills and knowledge that were relevant to the work at hand: interest and commitment to implementing online learning communities, some experience with the process of reflective practice, and good teaching skills as shown by past teaching award nominations. She was aware of the concept of a learning community and had a view of the possible benefits and a realistic view of the extra time and work load involved. Additionally, she had some previous experience in reflection on practice, including the preparation of a statement of teaching philosophy.

At the beginning of the study, the participant indicated that she wished to extend ways in which online teaching components were being used in an otherwise face-to-face large class. She talked about her previous experience with WebCT and her use of it for archiving course notes, for online quizzes, and for communicating important reminders or changes to students. She expressed a wish to see if more could be done with the technology, particularly in terms of achieving student connection and collaboration, and believed learning communities could provide the ideal framework. She described her
understanding of a learning community during the initial meeting.

A learning community is to me a collection of learners and their resources and a collection of learners using their resources, whether that’s each other, themselves, or external resources—electronic or print or people... working together, probably towards something targeted... communicating with each other about what they’re learning and what resource they’re using to do it. [15Sept4]¹

The participant commented that she promoted student-centered learning by encouraging students to pose questions and get feedback from other group members, which freed her to move on to facilitate discussion within another group. The following example demonstrates how she created opportunities for students to support each other’s learning, with her acting more in a coaching role.

I get a huge lineup of students outside my door, all standing there clenching their textbooks and their notes, silent. Standing there waiting to see [me]. So, I’ll go out and say, who’s in second year? Group together. Who’s in first year? Group together. Talk to each other, help each other, and all of a sudden, bzbzbzbz out in the hallway, and people start eventually leaving the line....They’ve got stuff sorted out, and all of a sudden I have less traffic, which is great for me, and hopefully there’s a seed of an idea, that my classmates are resources and I should talk with them....It’s a confidence builder... if someone asks about question four and we go through it, and someone else says I have a question about question four, I say, right, to the student who just got it, you’re on, that’s your else explanation....It’s like triage in here, and then I go troubleshoot with someone.

¹ This citation refers to the transcript of the participant-researcher meeting held on September 15, page 4. All subsequent citations follow a similar format.
Part of her approach to student-centered learning was expressed in her desire for students to take advantage of personal learning opportunities in ways that matched students’ preferences.

If people see others finding interesting things in other resources, it might encourage them. And if someone is pretty much a textbook person, and someone else is very much website oriented, there’s room for both, and so they can share that. [4Nov2]

An ancillary benefit she sought was that, because students would be interacting with and supporting each other, she should receive fewer student emails.

I’m hoping that they will work with each other in their groups... I have a faint hope it will cut down on some of the email traffic [for me]. [15Sept10]

Her overall goal was to incorporate the student interdependency she encouraged in her face-to-face teaching into the online environment in a way that would benefit both herself and the students.

The idea that we can get people connected and helping each other... and I think there’s a way to do it so that not everyone has to be sitting around the table at the same time. [15Sept5]

The participant further discussed her belief that collaboration was particularly relevant to studies in science. Collaboration, she indicated, was an essential skill for students in this field.

My natural instinct tells me that it’s a good thing for people to talk to each other, to have a forum where they can choose to participate... you don’t work in a
vacuum. It's a hideous waste of your time. It doesn't allow creativity to blossom and grow. It doesn't allow you to expand your skills in communication and teaching. In science training, you debate ideas. You understand that we don’t know all the answers and therefore there’s still something to talk about.

[19Nov10]
The participant’s purpose in creating online learning communities was to provide collaborative opportunities that would support student discussion about subject-related topics in a way that would be representative of academic research and professional practice. This was clearly expressed in the course outline.

This process is representative of the way [professionals in this discipline] work together and should reinforce the idea that having your colleagues as resources is very valuable. (Syllabus, p.4)²

Thus her goal of student collaboration was in keeping not only with her personal philosophy but also with her understanding of essential skills the students would need in this field.

The participant pointed out that an additional benefit of encouraging students to work together was that it had the potential to empower students.

[This is] efficient for the one who had the issue... and perhaps empowering for the person who could help them solve it. The idea that 2 heads are better than 1, and that 10 heads are better than 2, is something that I experience in my office, sitting around a table with a group of students. They come in ostensibly to see me for help... I’ve got them sitting around the table, and I’m over at my computer,

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² This citation refers to the course syllabus, page 4.
working away, just keeping an ear on things, but they’re doing all the talking.

That’s my most favourite thing. [15Sept5]

In addition, she hoped that the online discussion groups would empower students who were less active in other formats.

I’m hoping that online you can get around some of the natural group dynamics, like the person who dominates the conversation, the person who’s not comfortable speaking up, or the person who needs to process things in their mind extensively before speaking up, all those voices can express themselves online. [15Sept6]

Although the participant was excited about the possible benefits of creating online learning communities, she also referred to some anxiety about the process.

We’re taking a risk… it’s unfamiliar ground. I have no idea what the student response will be, so that, number one, excites me, and number two, gives me a little bit of trepidation. [15Sept9]

In particular, she discussed concerns about how the students would react to the online assignment, especially as it would be a new addition to the course and it was unlikely the students would have previous similar experience.

I have anxiety about whether the whole thing will fly, whether it will work, whether the students will “buy into” doing the assignments…. about whether they’ll have frustrations, and whether that will impact negatively on my teaching evaluations. [15Sept9]

While the participant hoped that the online learning communities would provide new opportunities for some, she was also concerned that for others it might hinder the communication.
Because they’re communicating online, I wonder if some of the personal or the human element disappears from the communication. [15Sept7]

While these anxieties did not appear to hinder her plan and implementation, they were expressions of concern that seemed to come from her desire that the online learning communities would provide successful opportunities for student-centered learning, collaboration, and empowerment.

In summary, the participant began the study with technical and personal readiness and a clear understanding of the study goals and some of the possible challenges. She brought to the study a personal teaching philosophy that was a good match with the study indicators around student-centered collaborative learning communities. The description of this starting point provides a backdrop against which to assess what, if any, significant growth occurred as a result of the study process in the areas of instrumental, communicative, and emancipatory learning.

Instrumental Learning

Instrumental learning refers to learning about new tools and strategies, how to improve them, and how to manage constraints. In this study, that learning centered on tools and strategies for creating online learning communities, the participant’s learning about how to achieve that more efficiently, and her management of the environmental factors that both supported and hindered that process.

Tools and Strategies: Implementing Online Learning Communities

Encouraging students towards online participation and collaboration was the participant’s main goal throughout the study and one that was a challenge throughout the
process. The participant worked to develop strategies that would support achieving the indicators for successful online learning communities, particularly *collaboration towards a shared goal and active and equal participation of group members*. She realized that support of these indicators was best provided through process indicators such as *provide prompt feedback, particularly on success of collaboration*.

The participant designed an assignment to support the online course component and to support meeting the study indicators. This assignment asked students to make two thoughtful postings per 2-week posting period. The postings could be questions or responses to other group members’ questions. Although the participant had clearly outlined the assignment in both the syllabus and in-class lecture and had sent a reminder email to all students, she was disappointed that not all students participated.

I was anxious about the groups where I saw zero postings, and I thought, have I somehow assigned groups with a bunch of people who dropped the course, or have they all agreed to not participate...I have worst-case scenario brain. [1Oct2]

The teaching assistant (TA) noted that the vast majority of postings were made shortly before the deadline for the posting periods. The last-minute postings were at odds with two of the indicators for collaboration in successful online learning communities, *collaboration towards a shared goal and valuing of other group members’ contributions and learning*, and suggested that students were not reading each other’s work but were merely posting to attain grades. The participant referred in particular to the indicator of *collaboration towards a shared goal*.

The first one [indicator] ties to all the others. That’s the part that’s missing right now. Here’s this thing, chugging along, some groups are getting at it, ’cause they
are posting at that level, and some are running behind, trying to catch up... or just running behind. [22Oct2]

Reflection on this point caused the participant to modify the structure of the online group discussion assignment for subsequent weeks in order to provide more opportunity for collaboration. This was done by creating topics for groups to discuss as well as by verbally encouraging students to participate and, in particular, to make considered postings.

One thing I will do is go back to the class... and say, "here are some observations thus far... want to encourage you to think about what thoughtful postings means."

[22Oct12]

The participant was pleased to find that this encouragement did increase discussion in most of the student online groups. She also saw the increase in discussion as evidence of success of the framework of the revised assignment.

The participant felt that the indicator of independence from teacher and self-reliance within the group was being met, and she seemed to be comfortable with the role of online eavesdropper as opposed to active participant.

Nobody’s invited me into their groups at all....Haven’t been in the last couple of weeks... I was buzzing in and just reading a couple here and there, and I was happy with what I was seeing. [4Nov12]

At times, the participant seemed to see progress towards some of the indicators as something that was out of her or the students’ control.

When I look back... I think it more just naturally happened, where there was a discussion that just picked up and went, and people saw value and just continued.
At the end of the term, the participant reflected back on the process and on her success in implementing online learning communities. She was aware that the challenge of getting students to participate clearly affected the outcome of the communities.

The indicators of successful learning communities: *active and equal participation of group members*. Well, those that showed up—if they didn’t show up, it’s not such a successful community [laugh]! [3Dec8]

Although the online discussion assignment had been restructured with assigned topics to encourage participation and collaboration, the participant did not feel this indicator goal had been achieved.

Creation of new information that requires collaboration. I don’t know. That’s pretty lofty. I’m not sure we ever actually got there, even in the suggested topics.

[3Dec8]

At the end of the course, she reiterated the concern that not all students were participating and talked about how she might address that in subsequent offerings of the course.

Yes, there are some [students with no postings]—here’s one, who’s been logging in since September, but has made no postings, so just opted not to participate... well, here’s some that have made none....after the first week or two I could say “what’s inhibiting you from participating?” [19Nov12]

While she was pleased that a number of students had engaged in the online environment, she continued to reflect on this issue and considered further strategies for following years.

Another of the indicators for the process of establishing successful online learning communities was to *provide students with feedback, particularly on the success of the*
process. The participant was aware that the literature suggested that this indicator was key to getting students to participate. She expressed concern about the amount of feedback students were getting about their online assignment work as compared to their potential expectations.

Do you think they’ll have an expectation—[that] they’ll want to know at the end of each 2-week period whether they’ve got their 1% or not? I’m just looking at this prompt feedback [indicator]....If I were the student I think I’d want to know did I get my 1%, and if not, why not, and how do I get it next time? [15Sept18]

The type of feedback the participant had in mind is evident in the following email she sent in reply to a student’s emailed question.

Hi, [student name], let me offer some feedback on the posting – it is a question, but perhaps it is not a very specific question. Also, it is not clear from the question what your current understanding of [subject] is at the time of your writing the question. To make the post more substantial, perhaps you could write a sentence or two about what your current understanding of [subject] actually is, and where you think those labels are applied, and then go on to ask whether there are other situations where those (or different) labels are applied. I hope that helps,

[participant] [22Octposting]

However, feedback of this type was sent only to students who asked specific questions. The participant acknowledged a gap in providing immediate feedback to the majority of the students and intended to make it part of the revised plan.

I think what I’d like to do is give the students feedback. Did they do a thoughtful job?...I’d like to expedite that if possible....there are other assignments they’re
handing in... they get them back, they get a mark, they know before they hand in the next one. [1Oct13]

While the participant was aware of the importance of feedback to the students, she continued to struggle to achieve that goal and identified it as a major area of focus for subsequent online activities.

I was frustrated yesterday because you’d made a good suggestion, which was the personal touch, the feedback on the personal reply to go in and look at the postings and say, “Hey, right on track,” or “hey...yes, this is thoughtful posting,” and I haven’t had time to do that. [1Oct6]

The participant was aware of the impact of the constraint of time on feedback. The direct feedback to student postings was one significant recommendation from the indicator list that fell by the wayside.

In summary, the participant progressed along the path towards implementing online learning communities. While the majority of students did participate, she continued to work towards engaging 100% in the online environment. Feedback to the students on their success was minimal and was another area that the participant identified as a focus for future years.

Management of Environmental Influences

While the participant had seen some progress towards the study indicators and had discussed opportunities for further improvement, she felt that environmental factors had inhibited full implementation of her plan. In addition to time and work load constraints, she saw support available from the institution as a factor that may have influenced her process.
Work load Constraints.

From the beginning of the study, the participant was aware of the constraint of time, especially when positioned against the anticipated increased work load involved in implementing a major technology-based change in teaching practice.

I anticipate some challenges with work load, because if I commit to the project, I’m likely to spend a lot of time thinking about how it’s going and is it doing what I thought it would do...I have to interface with the TA and spend time with them.....a significant chunk more students than I expected...frankly, we’re almost double the registration from last year...it just means there’s that much more data and reading. [15Sept8]

The participant had a full work schedule prior to beginning the study process and committing time and energy to implementing online learning communities. Adding the task of study participant caused her to realize the number of professional roles she carried.

Lecture preparer, test writer, tutorial writer, assignment writer. Secretary’s many things, includes phone calls, postings, lecture notes. I am a letter writer, a reference letter writer...I am a committee member and a committee chair...counselor and trainer...mentor, grant writer...outreach co-ordinator...research participant. [22Oct8]

There was also the challenge of a significant increase in the number of students. Course enrollment in the course chosen for the study had almost doubled, and overall teaching load had increased by approximately 20%.

I have one scheduled office hour each day, to service 600 students. [19Nov7]
In addition, the participant was teaching two different courses, each of which had a new textbook this term.

I also wanted to put on the record the other things that have contributed to this term. We changed textbooks, in both the courses I teach, which is a position I hope never to be in again, just because it creates a lot of extra work. [19Nov8]

The participant expressed a strong sense of the pressures of work load as a challenge to being more fully engaged in the online component.

I haven’t been meeting them there [in WebCT] this week at all… I also haven’t checked the folder at all in the last 2 days. No time. I hate it. I hate that. [1Oct14]

Although the participant was aware of the importance of being engaged in the online aspect of the course, she felt that her work load in other areas prevented her from having the time to do so.

Just as the time constraints affected her time spent online, they also interfered with obtaining feedback from the students. The participant intended to use a feedback survey to collect student comments about the online assignment, but found a significant challenge in finding the time to create it.

I could put it as a survey in WebCT and leave it open for the last week of classes…. I expect the response to be much lower than if I’d done it in class. For example, today they handed in an assignment, and it would have been nice…. lots of people are there… but the time constraints of my schedule haven’t permitted the creation of that. [I should] put something… it’s better than zero. [19Nov3]

She felt the burden of this time constraint when she considered her goal for the survey, which was to have allowed her to collect some formative data for consideration in
revising her plan.

My concern is that I have to try to not leave it too late in the course, as it's supposed to be formative as opposed to summative. [4Nov9]

Although the participant had anticipated having more time once classes ended, that did not turn out to be the case.

[The survey] sat on the “to do” list that entire week along with many other things that happened just in time. The whole week was brutal. I had thought it would be one of the lighter weeks of the... term.... many things happened just as they absolutely needed to. [3Dec4]

The participant’s work load was at times overwhelming. One of her ongoing struggles throughout the process was her use of the amount of time available. Throughout the term, the participant talked about strategies for improving time use, including the idea of breaking work into smaller pieces.

I’ve read a couple, but mostly not... I wish I had time to read more. But then equally, I say maybe what I need to do is sit down and chunk out some time to say I'm going to read now. [1Oct8]

However, although she talked about breaking large tasks down into small chunks as a strategy for time management, she was aware of a personal preference for tackling jobs all at once rather than breaking them into smaller chunks.

Because I haven’t felt like I’ve had time to sit down do it all. Do you see a pattern here? [19Nov8]

This pattern was also a factor that affected her opportunities for reflection. While she specifically expressed an understanding of the value of reflection, it was evident that she
did not prioritize it as a key task.

I see the value in the reflection based on the little bit I’ve done, and that’s something that I wish could be different, that I would have, in essence, just had more time [sigh] even to just do that on a weekly basis. I guess I got caught on the idea that it would be just a little each day, or from time to time, and because I couldn’t do that, it stopped me from doing it at all....I know that reflection is valuable, in many regards, so that’s something I feel I missed out on a bit.

[19Nov8]

In some cases, her anticipation of how much time something would take seemed to prevent her from beginning it. It was as if she became overwhelmed thinking about the potential work load. For example, although in the end the survey did not take a significant chunk of time, the participant delayed starting it because of the anticipated time factor.

I was surprised at how little time it took to prepare the survey...mostly because I had the seeds of the questions or the actual questions preprepared from the discussions. And I just laughed at myself. It felt like a really big task. [3Dec4]

Another aspect of her learning about time constraints was her realization that those things that she prioritized did get done. For example, she talked about providing feedback to students. She seemed to be aware that while time was a significant constraint, prioritization was the key to success.

Looking back at the fall term, I don’t feel like I was spending my time inefficiently. Every day there was a long list of things to do that I wrote, and I prioritized them as well. [17Jan3]
She was aware that the priorities she had assigned within this daily list were key to what tasks she accomplished.

I had that on my to-do list for Monday, and Tuesday, and I was... frustrated that I wasn’t able to get to it, because I thought it was a very sound idea... I prioritized other things that had to happen. And it’s still on the unfinished list. [1Oct2]

In discussing the eventual completion of the survey, the participant also alludes to the fact that it was completed once it was given priority.

Wrote it and copied it in the last hour and half before class because I was motivated to get it done....so I got it done. [3Dec1]

The participant learned that ongoing time and work load constraints significantly affected aspects of her plan. Specifically, she identified a lack of time to be engaged in the online course environment, to provide feedback to the students, to obtain feedback from the students in the form of a survey, and to do reflective journaling. She felt that her time management strategies were not the issue, but understood that prioritization of tasks would be the prime reason for task completion.

*Institutional Support.*

The institution provides a certain number of teaching resources, such as teaching assistants, department secretarial help, and a teaching and learning center. In addition, the participant’s department portrayed a strong philosophy in favour of new teaching initiatives, and research in that area. The ways in which these resources were a support to the participant is the focus of this section.

The participant several times throughout the process mentioned the critical role of the teaching assistant (TA) in being able to undertake implementing online learning
communities and also referred to the particular strengths that were brought by this individual to the process.

I’ve had an exceptional TA, and that’s really clear to me, and it’s also clear I would need a really special person to make this really work on a year-to-year basis… they’ve brought creative ideas. [19Nov7-8]

At the same time, it was evident that time constraints would be a factor in her use of the teaching assistant.

I have a TA who will help with it, but I have to interface with the TA and spend time with them…. it is an extra demand of time. [15Sept8]

The participant was also aware of the teaching assistant’s own work load and how much work she could download to the teaching assistant.

At some point, I have to say, how am I best going to use them? Will it be to do another tutorial for the whole class or analyze this? [19Nov2]

With respect to teaching assistants and secretarial help, the participant described that high work load constraints also affected these resources. The recent jump in number of students and faculty members had left the department without adequate staff support.

It’s called money! I get some secretarial assistance…. and that does help… our faculty grew… our graduate students grew… our undergraduates grew… the main office staff grew by zero. [22Oct3-4]

Other resources were available on campus in terms of technical support and faculty development support. While the participant was aware of their existence, and even planned to use them, it did not occur during the study.

I had wanted to go to our [faculty development center] and get some help in fine
tuning some of the questions to put together a questionnaire. I thought I could do that on Monday morning...and I never got there. [19Nov3]

Support of a different kind came from a strong departmental encouragement of research and also of teaching initiatives. The participant talked about how the research priority served as a motivating factor.

The enlightened self-interest in this is the potential for a conference presentation... something I can take to my supervisors and say, "Look! I'm involved in research and here's an example of it!" [17Jan7]

However, the idea of research about teaching was a new area for this department, one that was not perhaps fully developed.

It's an interesting balance... "Show us you can go there, and then maybe we'll support you going there"....rather than "let's free up some of your time to make this happen." [19Nov4-5]

In addition, the participant discussed the philosophical stance of the department vis-à-vis faculty members working to implement teaching change through reflective practice. When asked what view the department administration would have of reflective practice, the participant responded that while the department might support it, there was currently no evidence of active encouragement.

In this department, I would say [reflective practice] probably gets a little bit of lip service. And if anyone is practicing it, they're probably doing it unto themselves. It's probably smiled upon if it's producing a good result, but there won't be anyone going around poking people and saying, you know, you really should be thinking about this. [19Nov5]
In particular, I asked about whether the activities involved in reflective practice, such as keeping a reflective journal, would be valued. The participant talked about the conflict between the interest in improvement in practice and the lack of understanding of what that entails.

That would probably end up a zero. Just to say it like that would have no grounded meaning for almost anyone here....and, at the same time, there's a lot of push for "something to be done." [19Nov6]

This stance contributed to the participant's sense of being a solitary instigator of research about new teaching strategies. She noted that other initiatives in the department were likely to be undertaken by isolated practitioners.

[It] happens in chunks as people take it upon themselves to do something. [19Nov6]

The participant was aware that the department administrators talked about supporting these kinds of initiatives, but she felt that position was inadequately supported. While the institution provided support in the form of teaching assistants and a teaching and learning center, there seemed to be no clear department vision that would incorporate research about teaching or support of new teaching initiatives into an overall plan with adequate support.

Environmental factors of work load constraints and institutional supports affected the participant's reflective practice on implementing online learning communities. While the participant was aware of the existence of these constraints and supports prior to the study, the added work load of attempting to implement a significant change in teaching practice heightened that awareness. She continued to be challenged throughout the study
with inadequate time to accomplish the tasks she saw as important to achieving the study indicators and was aware that her work load meant that other tasks had received higher priority.

Communicative Learning

Communicative learning, according to Mezirow (1991), is learning that results from interactions with others. The participant’s communicative learning describes ways in which she learned through interacting with the students, the teaching assistant, and the researcher. Those interactions occurred through collaboration with each, and in each case occurred in slightly different ways. In the case of the students, it was what she learned through the feedback from the students; with the teaching assistant, it involved brainstorming strategies and sharing work load; with the researcher, it included brainstorming and using the researcher as a sounding board. Her interactions with these process partners enabled her to assess the study indicators, to understand her reliance on student feedback and interaction, to develop skills in assertiveness, that she preferred to know a process before assigning it to others, that collaborative reflection suited her over private reflection, and that the collaborative research process provided structure to her learning opportunities.

Communication with Students

The participant found student feedback to be helpful in her assessment of whether or not study goals were being met. Her view of the success of the project was strongly tied to feedback from the students. Through her communication with students, she learned about what to improve and how to assess her progress towards the study
indicators.

I’ve actually had a couple of people wander by this week, and I should have written it in the book—[saying they’re] really enjoying the WebCT opportunity to ask questions…. The student said, sometimes I don’t answer them online, I just see if I can answer them for myself… basically indicating it was a helpful study tool in that respect to see other people’s questions. [4Nov1]

At times, the success of the online discussion surprised the participant and convinced her of the value of the online learning communities as an opportunity for student discussion. The few times I have gone in to read postings, I’ve seen discussion that I was just amazed with. People are asking questions in areas where I know there are trouble spots. How do I know there are trouble spots? Because… people come in here and demand the same questions over and over again. And people have answered them beautifully [in WebCT]. [4Nov15-16]

The positive feedback she had received from this evidence as well as from the student comments was enough to convince her that it would be worth offering the online opportunity again. She reflected on her learning throughout the process, especially how she could improve the structure for subsequent offerings.

It’s been helpful to think about how to get more variety week to week, set up for next time I run this… going through it has also helped keep the idea of parameters more open ended in the course syllabus. [4Nov10]

She felt that her knowledge of achievement of the study indicators was based on direct feedback from the students.

The participant decided to implement a student survey, which she anticipated
would assist in assessing students’ overall progress in this course and would help her determine which of the goals had been met.

I’m excited to see if the survey gives any indication...[whether] the discussion thread was helpful in any of the areas I asked about. I also look forward to see if there’s any construction about how to make it a better opportunity. [3Dec2]

In addition to providing information for her own learning, she saw the survey as a possible tool to motivate students to participate in future online discussion groups.

I’d like to look at the data and see if I can find a correlation between performance in the course and highly active group discussion so that one could report back to the students entering the course next year...and to include that as a motivator to participate. [3Dec2]

The direct interaction with the students was an important source of feedback to the participant. She recognized some of the challenges in moving more actively towards the role of guide on the side and talked about previous teaching experience in this regard. It is clear that part of the participant’s excitement came from direct interaction with the students, and another part came from seeing the students work together to problem solve, independently of the professor.

I liked working with students so much, I find I may inadvertently have been encouraging a dependency...I love office hours. We chitchat about this, that, and the other...people work all together in big groups, and I get to know some of the students very well, and that to me is a very enjoyable aspect of the job. [15Sept10]

While the participant had expressed a strong philosophy in support of student-centered
learning, she also saw herself as a part of that model. She talked about her struggle in adjusting to less direct contact with students.

So, my student work load is on the whole down, but I have mixed feelings about that... I like my office hours... I'm in transition, right? I said give me less, I'm getting less, and I have to adjust to it. It's interesting... I think I miss [face-to-face chat with students] a little bit. I love office hours with the students. [1Oct15]

This is indicative of her personal struggle to balance her desire and philosophy for student-centered learning groups and her sense of isolation from the online discussions. It was clear that interacting directly with students was important to her, particularly in maintaining her enthusiasm and motivation for continuing the process.

So what I didn't write in my journal, but I'll just say out loud, there I am sitting there on Monday night starting to send these 200 and some emails, and all of a sudden I get this note: You have one message in your inbox, and I thought, Oh! Goody! It's very exciting! It was like, Oh! It's starting already!... and by then [morning] I had about 30, and then more came... that was very exciting, very exciting, it was like building up—hey, we're doing this thing, and it feels like it's working already. [1Oct1]

At the end of the course, her reliance on student feedback was still apparent. The participant's intent for the following year was at least partially dependent on how the students felt about the process. It is clear that student happiness would play a significant part in her decision.

Let's see how the student feedback comes back. If everyone says, yuck, I hated it, don't make me do WebCT again, don't make me talk to other people, I would
have to listen to that message. [19Nov9]

This may suggest that the participant placed student feedback above other evidence to show whether or not her goals had been achieved. At the same time, it is indicative of her openness to student feedback, and thus to learning through communication with others and listening to their ideas.

I had an email from a student...a nice email, with suggestions for how to improve the group discussion....The fun thing is, this was a student who took the course last year and failed....so this is a student who knows we didn’t do the discussion postings last year....They were very much in favour of it...their group participation was not so high, so they were really looking forward to the given topic....I thought it was nice to get the feedback. It had a very positive tone to it overall; it was constructive. I was delighted that they took the time to write as much as they did. [4Nov3]

Overall, it was clear that the participant was receptive to student feedback and found it helpful in planning revisions to her goals. One of the other benefits of the positive interactions with students was the sense of renewal of motivation and enthusiasm she derived.

Communication with Teaching Assistant

The provision of the teaching assistant was a environmental factor that came under institutional support. However, of particular interest to this study is the manner in which the participant interacted with the teaching assistant and what she learned in doing so.

One of the main ways in which the participant interacted with the teaching
assistant was in brainstorming discussion topics for the revised assignment plan.

We did our posted topics for posting period 4... It was [the TA’s] impression that it was a good idea to have the topics, and so we went ahead with topics for period 5... We came up with titles like, “Fact or myth” and then a statement... Even just that much evolution in the way we approached the topics was fun for me.

[19Nov1]

While the participant was aware of the TA’s attributes, there was also some reluctance to hand over aspects of the work.

Perhaps the TA and I can work together, mostly the TA, to come up with some suggested discussion lines... because that was their suggestion right off the bat, go back about 6 weeks, and they were very keen about that, so... I feel that I’ve been holding them back, because they’ll come with some questions, and I’ll say wait until I’ve had my meeting... and get back to you, and I feel like I’m reining them in. [22Oct2]

Some of the participant’s reluctance to download work may have arisen from her personal sense of responsibility for the course.

It isn’t up to [the TA]. It’s not their decision because they don’t have ultimate responsibility for the course. [22Oct2]

In the end, the participant became aware that it might have been possible to download more tasks to the teaching assistant. The participant explored this concern in the final interview and discussed suggestions for what would be needed next time around.

I would push harder... the TA going into the group and saying, “good job, you’re on track, these are thoughtful postings,” or “this is not a thoughtful posting, here’s
how you could improve it.” [17Jan2]

Through her interactions with the teaching assistant, the participant was able to brainstorm strategies but also came to realize that she could have used the teaching assistant as a resource in more ways. She learned that she could be more assertive in downloading work in the future.

*Communication with Researcher*

The interactions with the researcher provided support to the participant in a number of ways. She used meeting time with the researcher as opportunity for reflection and brainstorming and saw a benefit in the support of these meetings.

Although solitary reflection was not a significant part of the participant’s learning process, she welcomed opportunities to reflect on the process with the researcher. The idea of keeping a reflective journal was chosen in negotiation with the participant, who had previous positive experiences of journal writing and commented about the benefits of having a journal.

I picture me writing quite a bit about this at this end, and saying, here’s where I see my evolution. [1Oct17]

It was therefore interesting that, although the participant perceived the journal as an ongoing tool for reflection and learning and specifically referred to looking forward to using it in that way, in the end she engaged in reflection almost solely during meetings with the researcher.

I didn’t journal on those two questions that you left me to journal—I just realized that now as I opened it… but I’d be happy to do a little reflection for you today if you want. [19Nov4]
In addition, the participant used the meetings as opportunities to focus on improvement and to brainstorm further strategies.

It might be helpful to have ongoing group exercises. That’s addressing the idea of that person who’s just in there doing what they have to do. They’re not really keeping the group in mind as a whole. Like, constructively critique another group member’s posting. [4Nov11]

As a further example, the participant arrived at the October 22 meeting with a number of questions and concerns, many of which were resolved through open discussion during the meeting. For example, the researcher and participant brainstormed several alternative assignment formats as a means of addressing the last-minute postings.

Cool! We could do that. Actually, we could do a variation of that for one of these weeks—your topic for this week is write a good exam question for this course. I love it! [22Oct1]

Although she had struggled to find time to do any journaling, when I asked the participant whether the time involved in being part of the study had been onerous, she responded that it had not.

The chunk of time every 2 weeks is perfectly valid. I don’t see it as onerous.

Maybe that’s because I schedule it in. [22Oct6]

In many respects, the meetings replaced the journal as opportunities for reflection about the process. The participant obviously placed a high value on the face-to-face meetings.

The meetings not only provided opportunities for collaborative brainstorming and reflection but also served to raise the participant’s confidence in her plan.

Well, I think this has been a really big one. This is going to take care of a lot of
stuff. And as we talk through, what about the 1-hour deadline, what about this, it just gives me a more secure feeling. I don’t think there’s anything outstanding right now. [22Oct3]

It was clear that the participant found the reflection meetings supportive and confidence building. By the end of the first meeting, after clarifying the goals and indicators and discussing a number of technical issues, the participant expressed confidence in beginning the action research cycles of the study.

I think I feel ready for the set-up at this point... with a clearer vision of what’s to be done next….with the anxieties allayed. [15Sept25]

The participant referred to the positive aspects of being involved in the collaborative research process. Specifically, she mentioned the meetings as a source of support, a sounding board, and a guiding framework for the process.

Part of it is I feel supported in the exercise. Part of it is having a sounding board.

Not that I think you should necessarily have every expert opinion to every question I have….It’s nice because it does reengage me, knowing that the meeting is coming, and doing a little more thinking in advance of it. [22Oct6]

I asked the participant whether a colleague could play a similar role in subsequent initiatives. The participant expressed a perception that colleagues may not have the necessary skill set.

It’s not related necessarily to you–I could ask another faculty member with similar kinds of experience, I’d have to find one, I guess...someone who gets the idea of the course outline as a contract...gets the idea of WebCT, and gets the idea of changing the parameters and what impact that might have, and that’s a
reasonably specialized subset, I would say. [22Oct3]
The interaction with the researcher was a key component in the participant’s process. She learned through being able to engage in verbal reflection and used the researcher as a sounding board for her reflection.

Although the participant had planned to keep a journal, she found that the majority of her reflection occurred during meetings with the researcher. She found the meetings to be helpful brainstorming sessions for strategies to increase participation in the online communities and also commented on the support she felt in the process. She valued the amount of time dedicated to the research meetings as supportive to her success.

Emancipatory Learning

Emancipatory learning refers to learning that empowers or frees the participant. Emancipatory learning is about growth and development of self. The participant demonstrated emancipatory learning as she came to understand that her approach to change was to own tasks until she had reached a significant comfort level with them. She also demonstrated emancipatory learning in her learning about herself and in coming to see the support of the collaborative research process as an essential part of her transformation.

Learning about Change

The implementation of a new teaching strategy involved a significant change in teaching practice. The participant’s awareness of the challenge of change was raised through the study process. She saw that additional up-front work load was associated
with a change and realized that acclimatization was important to her personal comfort with the process. The participant was very much aware, moreover, of the extra work in implementing change.

Undoubtedly [a change in teaching practice is] more work. And the payoff, let’s be honest... I’m participating in aspects of improving... teaching... so there’s enlightened professional self-interest here as well. [22Oct12] She felt that this same teaching strategy would be less work in subsequent years because the process and time impediments would be known.

Having been through the exercise once, of course, you can look back with hindsight and say, I know now where some of the time blocks will be and how to handle some of the set-up. Attacking everything as an unknown, it was mentally very big for me. [17Jan2]

While part of this is clearly process knowledge, there is also an element of personal awareness that implementation of new strategies would bring with it an initial level of discomfort.

I see I cannot manage it all on my own, and I don’t have to. I can give over more to the TA. Plus, having been through it once I can give even more of it, now that I’m comfortable with what some pieces look like. [4Nov15] Some of the hesitation to download tasks was clearly related to the participant’s newness to the process of implementing online learning communities.

Now that I’ve been through it once, I would feel okay handing off to a TA, for example. Some of this stuff, I sort of felt like I was swimming through murky water, so I had to do some of it myself to experience it....before I would hand it
over to someone else, I needed to have a clear vision of what it would actually look like... I don’t feel like I can train somebody to do a job if I don’t know what it entails. [22Oct4]

She also reiterated the experiential learning inherent in having been through the process once.

Well, I feel like I’ve learned a lot going through it. These issues that have come up we couldn’t necessarily have seen... having gone through it once, I’d have these more in mind at the start, during the set up. They would have more meaning because I’ve experienced them once, and that’s important. [4Nov15]

The participant affirmed that adjusting to new experiences takes time and that change is an ongoing process. She felt that her first iteration would be more challenging simply for its newness.

Learning about Self

At the final interview, the participant reflected back on personal learning over the process, integrating knowledge gained from instrumental and communicative learning into new knowledge about her goals and her self. She talked about the support the collaborative research process had been in providing a framework for her learning.

The participant identified learning in several key areas, integrating her new knowledge from her instrumental and communicative learning.

I’ve learned I would like to read more of what the students are writing. I’ve learned that I get something from that on many levels. It’s feedback to me... It’s encouraging to me. [17Jan1]

I’ve learned that it’s okay to give some work away... I’m more prepared to do that
to see a project succeed. [17Jan2]

[I’ve learned] to have things off your plate as much as possible, to leave space for focusing. [17Jan3]

[I’ve] learned a little bit more about how to delegate, which is not a strong point. [17Jan4]

[I’ve] learned about experiencing this for the first time, and how greatly helpful that was, actually, the experience helped shape the vision—does that make sense? [17Jan5]

She was able to recognize that her learning about this process would be transferable to future teaching situations.

[A] reason I would do it again is because I see in it the seed for other activities. One of things we’re working towards is case studies….It just feels very supportive of the idea we’re trying to get started. [3Dec3]

Further, she was able to make recommendations for other persons who might undertake a similar process and referred to her own learning when considering these recommendations.

I don’t know if I should say to someone you should shadow someone who’s doing it and then you’ll know what to do yourself. That’s tricky, because it’s very specific….Make sure you’re not learning WebCT at the same time you’re trying this project…I already had WebCT experience and it was still…major. [17Jan2]

Talk to someone who’s been through it, or read about someone who’s been through it, well in advance….I’d say it would be good to have on board a sounding board…to whom you could go to with teaching and learning issues, I
think that would be key. [17Jan4]

The participant was pleased to have seen progress in her own path and to be able to identify specific moments in her learning.

I’m very happy. I’m very happy to be part of this process. Being able to talk through the options... I’m pleased about the fact that I see evolution in my thinking about the assignment right away—how to make it more flexible, how to possibly draw students in more. [19Nov7]

She attributed much of her overall learning to the collaborative nature of the research study structure.

I’m very glad that, I’m going to say, we did this. I’m glad I had the help creating the framework for it. [4Nov15]

The supportive nature of the collaboration created a sense of confidence, renewed the participant’s enthusiasm, provided a sounding board, and kept the process goal focused. These factors supported the participant’s growth throughout the process.

The construction of the framework, it’s been very helpful... in me coming to you and saying... I’ve got a question about this, that, and the other, and you basically saying, “figure it out.” In a very nice way, and with a few pointers... so that should take me forward with confidence next year. [3Dec5]

The participant talked about the way in which the meetings provided a supportive structure for the process, particularly in keeping it goal-focused. This opportunity for structured reflective time was key to the participant’s progress.

It’s been helpful in the prodding, of the “don’t forget what your goals were, don’t forget what the indicators are, you had this thing in mind – do you still have that
thing in mind? Are you reaching that thing, whatever that goal was?” It’s helped keep me present in the exercise. [3Dec5]

The conclusion of the term provided an opportunity to reflect back over the process and to review the study goals. It was evident that the participant’s view of the process goals had changed and that she was questioning her initial vision.

It’s prompting me to step back and say, what are the main goals of this project, or the main objectives, and are they changing, or should they change.... Do I want this tool as a vehicle for students to get together and create new knowledge as collaboration towards an ultimate goal? Well, I’m not sure. [3Dec9]

In the end, the participant reflected on the process as an opportunity for learning. In particular, she was aware of the opportunities for further growth.

Maybe everything would have gone perfectly, which is fine, but it’s also kind of boring... I feel like I have scope for change to make this better, to grow it. The first time through any iteration of a new thing in teaching, I wouldn’t expect it to be what my initial vision was, or spotless... It’s worth it to me because I believe in it. I believe there’s an opportunity here to do something powerful. [17Jan10]

Overall, the support of the collaborative research framework created a helpful learning environment for the participant, who was aware of her learning as she gained confidence in her readiness to develop online learning communities.

Summary of Chapter

The participant began the study with a philosophical approach to teaching and beliefs that matched her goals for the implementation of online learning communities.
Through a process of reflective practice, supported by the framework of collaborative action research, she demonstrated significant learning around the instrumental process of implementing online learning communities and came to clearly understand the constraints on that process. She discovered that, while time was a constraint, her management of it through prioritization allowed her to complete tasks she saw as essential.

Her communicative learning occurred through her communication with the students, the teaching assistant, and the researcher, as she learned through interactions with others. She learned that interaction with others gave her a lift and that student feedback was essential to her perception of teaching strategy success. She learned that she was reluctant to download tasks to others until she fully understood the tasks herself. She learned that interaction with others helped her both reflect on what had happened and brainstorm new ideas.

While she may still be on the path towards emancipation, through this process the participant demonstrated significant learning. She learned about the change process, about herself, about her response to environmental constraints, about collaborating with others, and in particular, about the ways in which the collaborative research process supported her learning, her confidence, and her overall personal and professional growth.
CHAPTER FIVE: SUMMARY, DISCUSSION, AND IMPLICATIONS

Summary

This study examined the reflective practice of one practitioner as she worked to develop online learning communities. The study grew out of an awareness of two key points that arose from reading the literature and from discussions with practitioners. First, faculty members are motivated to create online learning communities, seeing them as a way of providing constructivist learning opportunities that will engage students, particularly within a large class setting. Second, there may be little in the way of support for faculty to implement these new teaching initiatives.

A gap exists in the literature with respect to these two points. While numerous books outline how to create successful online learning communities, there are few that examine the process of implementation, factors that might affect that process, and the resulting effect on the practitioner’s personal and professional growth, particularly from the faculty member’s perspective.

Accordingly, the purpose of this study was to examine the reflective practice as exemplified by one participant’s learning, as she worked to develop online learning communities as an additional component in a face-to-face course. Four questions were addressed in order to examine the participant’s learning path.

1. In what ways does the faculty member’s philosophical approach to teaching affect her process? (beliefs)

2. In what ways does the participant learn about the process of implementing changes and factors affecting that process? (instrumental learning)
3. In what ways does the participant learn through her communication with other process partners? (communicative learning)

4. In what ways does the participant change as a result of the process, and what factors affect this learning? (emancipatory learning)

A methodology of collaborative action research was initially chosen for its close match with Schön's (1983) model of reflective practice. This was an ideal framework for this study, providing the participant with a *critical friend* as a sounding board for her process of reflective practice. Together, the participant and researcher progressed through five cycles of *plan-act-observe-reflect*, following Kemmis and McTaggert's (1982) model of action research. In a series of meetings, the researcher and participant discussed the participant's observations and reflection on her previous plan and her intentions to revise that plan. The participant then implemented the revised plan, observed the results, and reflected on the results at the next meeting. These meetings were audiotaped and transcribed, and categories were analyzed, grouped under umbrella themes, and returned to the participant for discussion at the next meeting. In this way, action research cycles served as an experiential learning model in which participant and researcher collaborated to improve practice.

During these planned reflective meetings the researcher asked questions to support the participant in clarifying and extending her thinking (see Appendixes E and G). This pattern of questioning of assumptions pushed the participant in critically reflecting on her practice as she worked to develop online learning communities. In this way, the collaborative action research methodology was an embodiment of co-constructivism through collaborative reflective practice.
The participant's growth through the process fit with Mezirow's (1991) model of transformative learning. She began the process with beliefs that matched her goals, and she demonstrated significant learning as a result of her process. This learning occurred in three areas. First, she demonstrated instrumental learning as she planned and improved her development of online learning communities. She became aware of constraints on that process such as workload and lack of institutional supports or time to use those that did exist. Her learning in this regard helped her to identify aspects of her own management of the constraints that might be a hindrance. She saw that feedback to the students, particularly in the early stages, was indeed a key indicator for successful process in developing online learning communities, and one that was difficult to meet because of time and workload constraints. Second, she demonstrated communicative learning that occurred as a result of her interactions with others, including students, teaching assistant, and the researcher. She saw her own needs for feedback and interaction more clearly as they were highlighted by her communications with other process partners. Third, she demonstrated emancipatory learning in her learning about her self. She revisited and questioned the suitability of her process goals, developed personal confidence in implementing new strategies, and came to value the benefits she derived from the collaborative aspect of the research process.

Throughout her reflective path, she identified the support provided by her human interactions with other process partners. In this way, the benefits she found to her learning from collaboration with others paralleled the benefits she sought for her students in creating online learning communities. Just as the literature suggests that student learning is enhanced by opportunities for collaboration, the findings of this study suggest
that the same is true for practitioner learning.

Discussion of Results

The study questions and results are compatible with Mezirow’s (1991) model of transformative learning, which begins with preexisting personal beliefs and incorporates instrumental, communicative, and emancipatory learning. The headings from this model are used here to frame the discussion of the results.

Beliefs

A practitioner’s beliefs towards teaching will affect any plan and enactment of that plan. Kane et al. (2002) note that “research into teachers’ beliefs... is grounded in the understanding that these concepts drive teachers’ practices” (p. 204). While existing teaching skills and knowledge are important, it is the practitioner’s philosophy towards teaching that is key in the success of the plan implementation.

The concepts of student collaboration, student-centered learning, and student empowerment are key factors in building online learning communities (Palloff & Pratt, 1999, Salmon, 2002). In this study, the participant’s beliefs about teaching, and in particular her philosophical stance towards encouraging student collaboration and learner autonomy, were very much in keeping with her goals and with the study indicators of implementing online learning communities, and she identified other factors as reasons why all the goals were not achieved. This finding departs from the results of studies by Briscoe (1993), Calderhead (1996), or Lock and Munby (2000), all of which identify a mismatch between beliefs and intended outcomes as the main reason that the participant(s) did not achieve preset goals. For example, Briscoe examined the cognitive
constructs of the participant vis-à-vis assessment practices and the ways in which conflicting beliefs constrained the participant “from implementing lasting change in his assessment practices” (p. 980).

Beliefs mismatch may indeed be a significant challenge for successful implementation of new teaching strategies and would reflect Kelly’s (1955) point precisely that “a person’s processes are psychologically channelized by the way in which he anticipates events” (p. 46). Having said that, however, the findings of this study suggest that a mismatch of practitioner beliefs with intended outcomes does not illustrate the whole picture as to whether or not planned changes will be successfully implemented. Other factors affect the participant’s path, such as environmental factors uncovered through instrumental learning and interpersonal factors uncovered through communicative learning.

*Instrumental*

Instrumental learning relates to knowledge growth about tools and strategies and identification and management of factors that affect their use. According to Mezirow (1991), instrumental learning relates to technical knowledge or “learning to control and manipulate the environment” (p. 73). This learning was evident in this participant’s progress as she learned about the process of working towards the study indicators. She learned that students needed encouragement to participate in the online environment and that significant time was needed to provide students with feedback on their participation. Although the participant worked towards the indicators of establishing successful online learning communities (see Appendix D), encouragement of that discussion and collaboration continued to be a challenge throughout the study process. In particular, she
found the indicator of *provide prompt feedback, particularly on success of collaboration* difficult to achieve.

She attributed her lack of success to time constraints which she felt affected her time to be online, her time to give and to get feedback, and her time for her own reflective practice, and also felt that inadequate support from her institution was a factor that affected the implementation of her plan. These findings are reflected in Blanchette and Pinet’s (2003) statement that “development support and time are probably the most neglected and difficult of the key barriers to e-learning adoption” (p. 31).

The constraint of limited time appears throughout the literature (Grundy & Kemmis, 1981; Seldin, 1987; Wagner, 1998). While Grasha (1987) and Noel (1987) recommend that practitioners develop strong time management skills in order to overcome this challenge, this may be easier said than done. The participant used the strategy of prioritization and was aware that those tasks she prioritized did get done, but at the same time was aware that there were simply too many tasks for the available time. She also found that while chunking tasks into smaller jobs may have made them easier to complete, it was at odds with her own preference for tackling jobs all at once. This result ties back to the understanding that beliefs and values affect the practitioner’s path.

The overload of tasks for the available time resulted in participant behaviours consistent with what Hopson and Adams (1976) term *cognitive shielding*. Cognitive shielding was evident in the participant’s response to significant demands on her time. In particular, her approach to time management of prioritizing tasks such that jobs were completed at the last minute was representative of *queuing*, which refers to delaying decisions during a period of decision overload (p. 16). *Approximation*, or making
decisions hastily and less thoughtfully, was evident when the last minute rush to complete tasks “just in time” did not allow the participant to make considered decisions. Filtering was apparent at certain times in the term; the participant talked about items that sat unaddressed on her “to do” list for some time.

While these short-term coping strategies may have assisted the participant in managing a particularly heavy term, Noel (1987) cautions that in the long term they only contribute to the practitioner’s increasing level of stress and to a decreased level of job satisfaction (p. 72). While natural breaks in the academic term may provide opportunity for temporary drop-out (Hopson & Adams, 1976), frequent and continued reliance on cognitive shielding techniques is likely to lead to early burnout. The participant of this study, a junior faculty member, did demonstrate some signs of stress and would therefore be advised to develop alternative time and work load management strategies instead of relying on cognitive shielding techniques.

In addition to concerns around personal health and job satisfaction, time constraints present a significant challenge in terms of improving teaching practice, as little time or energy may be available for reflective practice. This is particularly applicable when the improvement is being sought through research, as noted by Grundy and Kemmis (1981).

It should be noted in this context that participation in action research adds further demands to the work of busy practitioners, and that techniques need to be made accessible to practitioners so that action research can be carried out with the least possible disturbance to practice itself. (p. 94)

This issue raises the question of what supports are provided by the academic
institution for research-based improvements to teaching practice. Wright and Stammer (1996) list several supports that could be provided by institutions but are often not, including “adequate professional development opportunities... support for instructional design projects that incorporate new technology; release time to enable instructors to try something new” (p. 18). While a teaching development centre was available on campus, the participant found that time to use this support was limited. This was tied to her general sense of lack of time and may indicate that, even though resources are available, faculty members may find barriers to their use. Attention to the challenges of work load and time management must be a focus for both faculty members and administrators.

Communicative

Mezirow (1991) defines communicative learning as learning through interactions with others. The participant learned that feedback from the students was key to her assessment of the study goals and also to sustaining her enthusiasm for the process. She learned about her own disinclination to assign tasks to others before she understood them fully herself. She learned that while the first time using a new teaching strategy was difficult, collaboration was a helpful support. While the participant reported few insights that occurred in isolation, she discussed significant learning that occurred through discussion and collaboration with others.

This highlights an interesting conundrum. Much of the professional life of academics may be spent in relative isolation. Outcalt (2000) cites a study by Grubb in 1999, in which the author states, “except in a small number of exemplary institutions, most instructors speak of their lives and work as individual, isolated, lonely” (p. 58). This environment can create a difficult setting for involving others in reflective practice, and
practitioners may find reflection challenging to undertake on their own. As Carr and Kemmis (1986) point out,

The self-reflection of a lone subject... requires a quite paradoxical achievement: one part of the self must be split off from the other part in such a manner that the subject can be in a position to render aid to itself. (p. 200)

In response to this difficulty, Chivers (2003) reinforces the value of collaborative reflection. “Some professionals [who]... find it difficult, for whatever reason, to benefit in development terms from private reflection, benefit greatly from opportunities to reflect... with appropriate interviewers” (p. 13).

Interaction with others, such as the participant experienced through student feedback and discussion, brainstorming sessions with the teaching assistant, and in particular through collaborative reflection with the researcher, supported the participant’s learning process. This is reflective of Sherry’s (1996) findings that “the knowledge-building process [in collaborative partnerships] occurs because of the lively forum of joint activity and social interactions that take place among the participants” (p. 29). In addition, this interaction can also assist the participant in staying on track with the process. Mullen (2000) reports that “meeting, exploring options, getting feedback, and staying on target were all assets to... learning” (p. 10). The participant in this study specifically referred to the supports provided by the involvement of the collaborative researcher; she found that setting time aside for collaboration during meetings felt less onerous than scheduling time for private reflection. Although involvement in endeavours such as action research or reflective practice place additional burdens on practitioner work load, the participant specifically found that the collaborative aspect acted as a
structure that supported good time management.

Collaborative partnerships can address the issue of practitioner isolation and can be support systems for goal achievement. These interactions can take the form of symbiotic relationships in which the needs of each partner are met (Bickel & Hattrup, 1995; Whitford et al., 1997). Within this study, this kind of mutuality was apparent across the participant’s various interactions with her process partners. She supported her students’ learning and at the same time, from their feedback, learned about her teaching and how she could improve her interactions. Her teaching assistant was able to take advantage of the opportunity to try some ideas about online teaching and get feedback on the results at the same time as the participant benefited from their brainstorming regarding online teaching strategies. The participant benefited from having the researcher as a sounding board, and the researcher benefited from the study in terms of personal development and professional knowledge gains.

The collaborative relationship can also take the form of a mentorship model (Enerson, 2001) or a consultancy model (Carr & Kemmis, 1986). The model presented by Carr and Kemmis is a close match to the way in which the study process unfolded.

Outside facilitators form cooperative relationships with practitioners, helping them to articulate their own concerns, plan strategic action for change, monitor the problems and effects of change, and reflect on the value and consequences of the changes actually achieved. This is sometimes called a ‘process consultancy’ role. (p. 203)

Clear negotiation of roles before beginning the process can define the style of the collaboration and result in a stronger relationship and fewer difficulties. In this study,
although the participant and researcher had collaborated before and significant trust already existed, the initial meetings were spent negotiating roles within the study process. In this way, the researcher remained a facilitator of process as described by Carr and Kemmis (1986): “The researcher’s role is Socratic: to provide a sounding-board against which practitioners may try out ideas and learn more about the reasons for their own action, as well as learning more about the process of self-reflection” (p. 203). The participant commented that this model allowed her to develop confidence in her plan, as all questions she posed were returned to her for reflection and decision-making.

This is not to suggest that collaboration overcomes all challenges to reflective practice. There is the potential for the researcher to take over the study such that it is no longer a shared endeavour. “When ‘facilitators’ work with teachers and others in establishing teacher-researcher projects, they often create circumstances under which project control is not in teachers’ hands” (Carr & Kemmis, 1986, p. 202). This is echoed by Mitchell and Sackney’s (2000) discussion about school leadership. “The leaders can certainly facilitate and advise, but their role is to facilitate the process, not to control it. They support the transition and encourage it, but they do not manipulate it” (p. 136). Altrichter (1993) suggests that clear negotiation is required to avoid these problems. “Action research is considered ‘ethical’ if research design, interpretation and practical development produced by it have been negotiated with all parties directly concerned with the situation under research” (p. 48). This is in keeping with findings from a study on collaboration by Atkins, Brinko, Butts, Claxton, and Hubbard (2001), whose first recommendation is that faculty, staff, students, and administration “recognize and honor the centrality of human relationships” (p. 335).
The question of process ownership is tied to the importance of voluntary participation in the collaborative endeavour and is critical to its success. Forced collaboration, in which participants are required to work together with little thought given to a suitable match of beliefs or goals, is unlikely to lead to success, regardless of the amount of role negotiation. At the same time, practitioners who may benefit from collaborative opportunities for professional development may not come forward to participate. Altrichter (1993) points out this potential weakness in the model: “Its insistence on voluntary participation and its attraction to innovative, professional teachers repels, at the same time, less innovative, less professional teachers. Thus action research is in constant danger of elitism” (p. 53).

In summary, just as collaboration can result in greater learning success for students, collaborative action research can provide a supportive framework for personal and professional growth by providing structured learning opportunities that help to overcome practitioner isolation. Clear negotiation of roles can help to avoid difficulties that may otherwise arise through role conflict, and the collaborative partnership can then become one of support and encouragement that helps the participant to remain on track and to focus on goals.

*Emancipatory*

Emancipatory learning, according to Mezirow (1991), implies learning about self and changing beliefs such that the result is freedom for the learner. Freedom may result in empowerment through knowledge gained or freedom from previous values or beliefs systems. In either case, a transformation has occurred in the learner. Critical evaluation of existing constructs through reflective practice is expected to lead to this transformation.
“One may argue that when faculty critically question why they have certain goals and purposes they engage in emancipatory learning” (Kreber, 2003, p. 293).

Reflective practice provides a framework that can lead to an improvement in practice and an increase in knowledge. “The primary benefit of reflective practice for teachers is a deeper understanding of their own teaching style and ultimately, greater effectiveness as a teacher” (Ferraro, 2000, p. 2). The participant’s emancipatory learning regarding establishing online learning communities came about as a result of the combination of plan-act-observe-reflect (Schön, 1983) as she engaged in cycles of reflective practice. Tomkinson (2002) highlights the interdependency of the stages in the process. “Thinking about what we do is not sufficient; for reflective practice we must be acting upon our thinking and evaluating the results of our action” (p. 1).

Learning-in-action is the aspect of reflective practice that is most clearly linked to emancipatory learning. “What is clear...is that the ways in which individuals emerge with professional development involve a complex negotiation of the relationship between reflective and active components” (Clegg et al., 2002, p. 145). When practitioners reflect on their teaching practice, new understandings of their teaching and themselves can emerge. “As a result of their experiences as teachers and learners, [practitioners] construct beliefs and images regarding the nature of their roles as teachers...these cognitive constructs...may affect their ability to change” (Briscoe, 1993, p. 971). Thus, while beliefs can affect the practitioner’s path in implementing change, implementing change and reflecting on that change can affect the practitioner’s beliefs.

It is precisely the opportunity to engage in practice that brings breadth and depth to reflection. In this study, the participant began her reflection focusing solely on
technical aspects of the study, such as how to overcome challenges of the computer technology and how to deal with the number of postings. Subsequently, she moved to reflection about interactions with others such as how to encourage students to higher levels of participation and how she could best use the resource of the teaching assistant. Reflection that demonstrated greater depth, such as questioning her original intent, examining her approach to time management, and reflecting about her overall learning path predominantly came towards the end of the study. Thus while instrumental learning began early, followed shortly by communicative learning, emancipatory learning took much longer. This result not only matches Mezirow's model of transformative learning, but is also reminiscent of Maslow's (1954) hierarchy of needs: Only once basic requirements have been dealt with can there be a focus on self-actualization.

Transformation of this type is a change that takes significant time and energy. Mezirow (1991) discusses the importance of a critical incident in which the existing beliefs no longer fit and the practitioner must examine and amend personal constructs. While it may be true that, instead of an incident, it could be situational, such as the stress levels caused by attempting to develop a new teaching strategy in the midst of an overwhelming term, it may be difficult to assess transformation in the shortterm. The findings in this study suggest that transformation may be a process rather than an event or an outcome. While the participant probably could not be described as having been significantly transformed, she began to question her approach to her goals. Further time engaged in reflective practice could possibly result in further transformation, reinforcing the idea that transformation is a process and not a moment in time.

According to Prochaska's transtheoretical model of change, "people go [through]
these stages at their own pace. Change is a cycle. [Practitioners] may enter the cycle numerous times before a change is made” (K. Parker, personal communication, 2002). If limited time is available, change may take longer, as the participant in this study discovered. She talked about the importance of the first time through the change process in getting to know the path and what was involved. She also commented on her developing patience through the reflective process. Mitchell and Sackney (2000) agree with the need for a patient approach on the path towards transformation.

Educational change… can (and probably should)... be nudged in particular directions, [but] cannot be forced into unnatural shapes or prodded in unnatural directions. It is a life force, and like any other life force, it will flow as it should, given sufficient support and sustenance to do so. (p. 133)

Reflective practice supports emancipatory learning and practitioner empowerment. This is particularly true of collaborative reflective practice. “The collaborative... model... is practitioner centered, experiential and research oriented, reflective, and empowering” (Mullen, 2000, p. 4). The participant reported significant transformative learning that she attributed to reflection within collaborative partnerships. She commented on new understandings of herself and her interactions with others. In particular, she was pleased to see what she identified as significant growth and looked forward at the end of the study to further opportunities with other collaborative partners, such as a grant application to develop further teaching strategies. In short, collaborative reflective practice towards change takes time and patience but at the same time can create opportunities for significant personal and professional growth.
Summary

The participant’s beliefs regarding participant-centered collaborative learning was consistent not only with the study goals but also with the study framework of collaborative action research. The participant learned that a change in teaching practice takes time and patience and that the first time through is primarily about coming to understand the process. She found that collaborative reflection provided a supportive and structured framework for reflection and learning and that the collaboration offset a sense of academic isolation that might otherwise have existed. Cambridge (2001) states that when transformation is the goal, reflective practice will “need to challenge our own deepest thinking and to do so in the company of others engaged in the same work” (p. 15). While the participant’s transformative path is in the early stages, it was the opportunity for collaborative reflective practice that helped her take the first steps.

Implications

The findings of the study affect assumptions about teaching practice and theory and illuminate areas for further research. The results suggest changes in practice to include other process partners and changes in theory to incorporate collaboration into the reflective practice model. The study also raises questions for further research in the area of collaborative action research in order to investigate whether the model is equally suited to other practitioners.

Implications for Practice

Strategies for encouraging participation in online learning communities should match the goals of creating those communities. Thus, if one of the goals is to encourage
interdependency amongst the students, then rather than the facilitator reminding students to participate, encouragement should be aimed at having fellow group members remind them. As an example, an email could be sent to each group member saying not only, “This is your group,” but also, “These are your group members, and your task for the first week is to get them all online.” In this way, assignments and assignment structure match the overall goals.

Time and lack of support from the institution are recognized as significant and ongoing constraints. Significant supports exist for students in terms of classes, texts, posted lecture notes, seminars, help desk, tutorials, and professor office hours. In contrast, faculty members may perceive low levels of support for their teaching initiatives. In some instances, supports are available but faculty members do not take advantage of them. A double focus is required: (a) support faculty members in developing time and project management strategies, and (b) consider ways in which to bring the support directly to the faculty member’s office or classroom. In addition, and in view of the significant challenges of time constraints, administrators must also examine the work load that faculty members are carrying with respect to committees, outreach projects, and other ventures that may take significant unrecognized time. This is clearly an area for consideration if faculty members are to undertake research into their teaching practices and contribute to scholarship in teaching and learning.

Recognizing the support of the collaborative model, universities can support the linking of those seeking to implement new practice with those who have experience in that particular area. An analogous model might be found in the campus “I need a ride to” bulletin boards. Faculty development centres could post an electronic “I need a ride to”
board so that practitioners interested in new teaching initiatives, such as implementing online learning communities, could team with others facing similar issues as well as with those who could bring experience.

Practitioners interested in improving practice should do everything possible to collect formative feedback from all process partners. This means conducting a student feedback survey early in the course as well as gathering feedback from teaching assistants, teaching colleagues, and any other relevant partners. This provides input into the practitioner’s reflective practice, and in so doing, strengthens the experiential learning cycle.

Strategies can be helpful to those already committed to change. While in themselves they do little to affect the beliefs of those adamantly against change, promotion of new teaching initiatives can serve as an advertisement to faculty members that others are interested in implementing new strategies. While the old adage may be true that “you can lead a horse to water but you can’t make him drink,” he’s more likely to sample the water if the herd is already doing so. This is not to imply that a change in this regard will happen overnight, but simply that while some will embrace opportunities for change others may prefer to wait and learn from others’ endeavours.

Implications for Theory

Previous studies around practitioners’ implementation of new teaching initiatives have focused on the mismatch between the practitioner’s beliefs and overall goals and have highlighted this as the reason why the goals were not achieved. This study, in which there was a strong match between the participant’s beliefs and goals, suggests that other factors such as time constraints and management of those constraints are also important.
A key finding of this study was that collaborative models for reflective practice provide significant support structures. The participant commented about the importance of other process partners as catalysts for her learning. She benefited from the opportunity to discuss her perceptions with the researcher as critical friend. In contrast, the traditional model of reflective practice presented by Schön in 1983 describes a lone educator reflecting on personal practice. The study findings support a revision to Schön’s model in order to incorporate opportunities for collaboration within the cycles of reflective practice, as shown in Figure 2. In this revised model, the practitioner would still move through stages of plan-act-observe-reflect but would also incorporate collaboration with process partners, such as a researcher colleague, to support the reflection and planning stages. If knowledge is power, then learning is empowerment, which, according to Kemmis and McTaggart (1982), is one of the goals of action research. It may be that collaborative action research provides the ideal model to support transformative learning, or at the least, supports first steps on the path to transformation.

Implications for Further Research

Implications for practice and theory would need to be studied through further research. Different findings may arise from study of practitioners at different levels of experience with online teaching, and the collaborative reflection model would need to be examined for suitability to a diversity of practitioners as well as researchers.

From the participant’s perspective, the overall goal of the study was to learn how to implement online learning communities in a way that would be efficient and would facilitate the students in deriving the greatest benefits. This interest reflected Brookfield’s (1995) comment that learning primarily focuses on subject content, or instrumental
Figure 2. Collaborative reflective practice and action research cycle.
requirements. This may be typical of first-time attempts at implementing new strategies. It might be interesting to examine the reflective practice of faculty members who are on subsequent iterations of new teaching initiatives and to study whether practitioners engage in deeper and more personal levels of reflective practice once they have achieved a level of comfort with the new strategy.

If a match between beliefs and goals is a prerequisite for goal achievement but transformative learning results predominantly from the disconnect between personal constructs and the goals, then further research could investigate whether starting point should be tied to intended outcomes. By that, I mean that if the outcome sought is goal achievement, then goals that are a close match with teaching beliefs will support that outcome. If, on the other hand, the intended outcome is personal and professional growth for the practitioner, then choosing goals that are a mismatch may be more likely to lead to transformative learning. Clearly, this would require further investigation.

Another area of further research is suggested by the ways in which the collaborative research partnership transformed both participant and researcher. The participant in this study was predominantly a social reflective practitioner rather than one who preferred reflection in isolation. The same was true for the researcher. Further research could examine whether this preference is linked to learning style preference, gender, or other contributory factors. While this study has shown the benefits of collaborative reflection for one participant and one researcher, more research with a diversity of participants and researchers would be needed to determine if the model is more widely appropriate. In addition, it would be interesting to study ways in which action researchers are professionally and personally transformed through their
involvement in the collaborative research process. Further research might suggest a model in which practitioners become involved as a critical friend in someone else’s work in order to experience transformative learning.

The use of collaborative action research as a faculty development model merits further research in order to study in a wider context the benefits of the process, the barriers to undertaking it, the motivational factors in favour of doing so, and the ways in which it could provide professional development for not only the participant but also the researcher.

Researcher’s Learning

To this point, my discussion has been about the participant’s learning path throughout the study. This has the potential to imply that I was merely an observer in the process, and such is not the case. Being part of the collaborative research process has had an impact on me as well, and I find my own learning path parallels that of the participant.

My instrumental learning has been around techniques for conducting action research, which was a new area for me. I found at times that I was overwhelmed by the increasing number of threads I could have followed and was struck by the truth in Battaglia’s (1995) comment that “it’s easy to lose yourself in the action research process; in fact, there were times when I became so inundated with ideas and questions I could barely see the things I needed to study” (p. 89). I had to continually remind myself to return to the study purpose and questions. At times, the stack of photocopied journal articles I had collected in order not to lose various category threads created an enormous burden of reading. I have acquired strong skills in skimming articles for relevance. I remain concerned that I will have somehow missed key questions. I realized I forgot to
ask the participant directly about what questions remained at the end of the study. For example, to focus on metacognitive learning (Mitchell & Coltrinari, 2001), instead of merely asking, “If you were doing this again, what would you do differently?”, I would ask, “If you were doing this again, what would you want to learn differently, and what different questions would you ask in order to achieve that?”

My communicative learning was about my role within the collaborative research study. At times it was difficult to maintain the researcher role articulated in the literature; I became caught up in the excitement of the process. At the same time, I admit that at some times I felt a disappointment that things weren’t going as planned and that the participant didn’t engage in more journaling and more feedback to the students. These were egocentric thoughts of the worst kind: It was not, after all, my study; it was the participant’s. I have subsequently had a chance to step back from the process, and have been more easily able to see the steep learning curve through which the participant has come. Like the participant, I too have developed patience.

My emancipatory learning has been a renewal of my sense of myself as an experiential learner. I read many books and articles for this work, some of which I had read before but which previously had little meaning to me. Now I felt I was reading brilliant conceptual frameworks; I had the experience that provided structure and meaning to these frameworks. It was the process of the study that provided for me a concrete example of the theory, and as such, an opportunity to connect theory to practice. This experience has paralleled that of my overall experience as a Master’s student. I came to the program with experience of education and faculty and professional development. If I had done the degree earlier in my life and without these experiences, it might have had
less meaning for me and provided less opportunity for personal growth. I believe there is a point at which the rich connection of ideas overcomes inertia, exactly as happens when ascertaining categories and themes in qualitative data analysis: Suddenly, the pattern is clear. The thesis work has been both a consolidation of my experience and my further readings about certain topics as well as an exploration along the new path that their interaction has revealed.

Final Thoughts

Mitchell and Sackney (2000) write of Ferdinand Magellan’s circumnavigation of the world and the significant change in perceptions that resulted from the realization of the loss of 24 hours during the trip. No longer could scholars believe the sun revolved around the earth; a new model was indicated of the earth and planets revolving around the sun. This historical event provides an inherent metaphor for the benefits of collaboration. What strikes me most profoundly is that the moment was dependent on two separate groups of people: those who left to make the journey and those who had stayed behind. It was only through discussion with those who did not complete the circumnavigation that the knowledge of the loss of the 24 hours became apparent. Without the second group, no one would have noticed the date change nor realized its implications. This is the strength of collaborative research efforts—different individuals or groups bring their unique skills such that some can provide the experience and others can act as sounding boards and point out the discoveries.
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Appendix A

Glossary of Key Terms

Assumptions: factors and situations affecting the research study that have been taken for granted. They, with limitations, are the methodological parameters of the study.

Authenticity of results: the veracity or truth value of the data (Lincoln & Guba, 1985). The term is used to distinguish it from validity which is a term used in quantitative studies.

Catalytic validity: improvement in practice suggesting authenticity of results.

Collaborative action research: a type of research in which partnerships are formed between participants and researchers, or between participant-researchers, who then move through cycles of plan-act-observe-reflect towards an improvement in practice.

Collaboration: one or more persons working together to co-construct knowledge.

Communicative learning: learning as a result of interactions with others.

Emancipatory learning: transformative learning that results from examination of existing beliefs and values.

Guide on the side: the educator as facilitator of learning process.

Instrumental learning: learning about strategies and tools, constraints and supports affecting them, and management of these factors.

Limitations: statements telling what the study does not examine.

Online learning communities: groups of learners who, through use of computer-based technology, collaborate to construct new knowledge. The indicators listed in Appendix D provide a view of the characteristics that identify these groups.

Sage on the stage: the educator as expert holder and dispenser of knowledge.
Appendix C

Ethical Guidelines for the Study

The following ethical guidelines were observed throughout the study in order to safeguard the participant’s interest.

1. The participant was informed as to the purpose and the nature of the study.

2. The participant volunteered to take part in this study, and was free to withdraw at any time if she wished to do so, without penalty.

3. The participant had the opportunity to review the researcher’s summary and interpretation of the information collected from the participant in order to determine the accuracy of the researcher’s reporting and interpretation. Changes were made as deemed appropriate by the participant.

4. To guarantee anonymity of the site and participant, the participant is referred to only as “the participant.” The participant or her position, department, or institution were not identified.

5. The information collected in this study was and will be used for academic purposes only, and confidentiality of the data will be maintained with respect to all other purposes.

6. Tape recordings were made of all meetings and interviews, and transcripts were made from these tapes. The participant had the opportunity to review and purge all transcripts, as well as the final study report.

7. Only the researcher, her advisor, and the participant had access to the data on tape recordings and transcripts, reflective journals, and field notes generated during the study.

8. The participant’s reflective journal was returned to her following completion of the final report of the study.
Appendix D

Indicators of Successful Online Learning Communities

*Indicators of Process for Establishing Successful Online Learning Communities*

(developed from Chickering & Gamson, 1987; Palloff & Pratt, 1999; Salmon, 2002)

1. Clearly define the purpose of the group.
2. Get everyone online and interacting with other group members.
3. Establish code of conduct for online discussion (time on task, members to primarily settle own disputes) and communicate high expectations.
4. Allow for and facilitate a range of member roles, leadership from within, and subgroups.
5. Provide prompt feedback, particularly on success of collaboration.
6. Facilitate group moving from information exchange to collaboratively creating new knowledge.
7. Allow for and facilitate student reflection on the process.

*Indicators of Successful Online Learning Communities*

(developed from Chickering & Gamson, 1987; Hathorn & Ingram, 2002; Palloff & Pratt, 1999)

1. Collaboration towards a shared goal.
2. Active and equal participation of group members.
3. Thoughtful responses to postings in discussion threads.
4. Valuing of other group members’ contributions and learning.
5. Independence from teacher and self-reliance within group.
6. Creation of new information that requires collaboration.
Appendix E

Questions to Guide Meetings

*Questions to Guide the Initial Meeting*

(developed from sample selection criteria, and Kemmis & McTaggart, 1982)

1. What factors have contributed to your readiness to create online learning communities?

2. How would you describe your philosophy around creating online learning communities?

3. What challenges do you anticipate?

4. What goals do you visualize?

5. What questions do you have?

*Questions to Guide Reflection (Reconnaissance) Meetings*  
(Battaglia, 1995, p. 86)

1. What patterns or principles have emerged for you as a result of this process?

2. What does this affirm for you?

3. What has this meeting caused you to think about?

4. What are you taking away from this meeting?

5. Where will you go from here?

6. What role would you like me to play?

*Questions to Guide the Final Interview*  
(developed from Lock & Munby, 2000)

1. What was the effect of environmental influences on this process?
2. How did your philosophical approach affect the outcomes you sought to implement?

3. What effects did the collaborative process have on your success at achieving goals?

4. Additional questions such as emerge from the action research cycles will be added (see Appendix G).
Appendix F
Questions to Guide Journal Entries
(Battaglia, 1995, p. 84; Mitchell & Coltrinari, 2001, pp. 25-31)

Narrative or descriptive reflection

1. What parts of the plan have I implemented? What worked well and what didn’t? Why did it work well?

2. What was the student response? What strategies did I use that positively affected their learning?

Metacognitive, analytic, evaluative, and reconstructive reflection

1. What is my philosophy of teaching in online environments, and where did it come from? How is it different from or related to my philosophy of face-to-face teaching? How comfortable am I with moving towards being a guide on the side versus a sage on the stage? Why did I choose the plan that I did?

2. How do I perceive my role in facilitating online learning communities? What connections have I noticed between my perception, my plan, and implementation?

3. How does my institutional culture support or hinder my planning and implementation? What institutional factors affected my process toward creating online learning communities?

4. How aware was I of students’ reactions to my plan? In what way did that awareness affect my implementation, observation, reflection, and subsequent plans?
5. What problems have been resolved, and what problems have not? Are there new problems?

6. How have I responded when things didn’t proceed according to my plan? What effect does my reaction have on my subsequent observe, reflect, plan, and act stages?

7. How comfortable am I being honest with myself about my teaching practice? How open am I to plans for change? How open am I to being questioned about my teaching practices?

8. When does the process seem easy, and when does it seem difficult?

9. If I had to do it again, what would I do differently? What changes do I think might be necessary in my plans and responses? What worked and what did not, and how do I distinguish the two?

10. What differences do I see between anticipated outcomes and realized outcomes? To what do I attribute this?
Appendix G

Questions Arising from Interview Transcript Analysis

Questions arising from Sept 15

1. Is there a collaborative goal for groups—and how will you know whether it’s realized?
2. How do you move from sage on the stage to guide on the side?

Questions arising from Oct 1:

1. Which aspects of your job would you be happy to give up? How do you feel about the balance of time you are spending on these?
2. What is preventing you from journaling?
3. Do you feel that the initial activity (send an email to the instructor) was in line with your goals?
4. Reflect on what you are doing (as participant) with what you are asking the students to do—do you see a parallel?

Questions arising from Oct 22

1. I note a focus on how to improve for next year—how do you know at this stage that it’s worth doing again?
2. Was your plan from last meeting enacted—and if not, what got in the way of implementation?

Questions arising from November 4

1. What do you know now about action research/reflective practice/yourself that you didn’t when you agreed to do this?
2. Would it have been helpful to review each transcript at the beginning of the next meeting?
Questions arising from November 4 (continued)

3. What kind of institutional supports exist for your initiative, particularly in terms of the department administrator’s philosophy?

4. Do you feel that you took full advantage of the teaching assistant’s available time and skills?

Questions arising from November 19

1. How do you find time in your job for a change in teaching practice, especially a considered, reflective, research-based change?

2. What would you like to focus on for next time you incorporate this strategy?

3. To what do you attribute your accomplishments to this date?

Questions arising from December 3 for final interview (in addition to Appendix D)

1. Please reflect back over the whole process, and think about your own learning. What do you know now that you didn’t at the beginning regarding:
   
   (a) implementing online learning communities

   (b) yourself as a teacher?

2. Please comment on the research process in which you participated and compare/contrast it to the process in which you asked your students to participate.

3. Overall, how successful have you been in achieving online learning communities?

4. What are the main factors that have challenged that success?

5. Could you implement a change of this scale without support of TA, research process, others?

6. How do you create the mental space needed to get things done?

7. Also, ask # 2,4,5,9,10 from journal questions in Appendix E.
Appendix H
Themes and Categories from Meeting Transcripts

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<thead>
<tr>
<th>Date</th>
<th>Theme</th>
<th>Categories</th>
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<tbody>
<tr>
<td>September 15</td>
<td>Student success</td>
<td>Enthusiasm for student collaboration</td>
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<td>Desire for Student empowerment</td>
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<td>Desire for Student convenience</td>
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<td>Up-front clarity to students</td>
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<td>Specific tools/strategies</td>
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<td>Goals for process</td>
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<td>Sage vs. Guide</td>
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<td>Readiness vs. anxieties about process</td>
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<td>Resources or lack</td>
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<td>Reflection on initial plan</td>
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<td>Interaction with TA</td>
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<td>Anxiety</td>
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<td>Specific tools/strategies</td>
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<td>Learning about the process</td>
<td>Would repeat next year&lt;br&gt;Learning re: community creation&lt;br&gt;Benefits of doing research&lt;br&gt;Benefits of doing journal&lt;br&gt;Revised plan</td>
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<td>Learning–TA</td>
<td>Use of TA&lt;br&gt;Interaction with TA</td>
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<td>Work load vs. time</td>
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<td>Interactions with TA</td>
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<td>Interactions with researcher</td>
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