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# Instructors' and Students' Experiences with Online Collaborative Learning in Higher Education

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UNIVERSITY OF CALGARY

Instructors' and Students' Experiences with Online Collaborative Learning in Higher Education

by

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A THESIS

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## **Abstract**

The purpose of this multi-case study was to examine the collaborative learning process in two online graduate courses over 13 weeks. The collaboration was assessed through instructors' and students' perspectives in terms of what factors successfully supported collaboration, what factors had a negative impact on collaboration, and what recommendations could be made to enhance future experiences. Data were collected from various sources: semi-structured interviews, documentation, synchronous and asynchronous discussion forums, and online observation. Findings from the study identified three essential conditions that were required to support online students' collaboration: 1) building a safe environment; 2) helping students to feel comfortable; and 3) preparing students for meaningful collaboration. Also, the study identified factors that should be considered in designing online collaborative learning and the necessary structures and scaffolds that need to be in place to support online collaborative learning. Online collaborative learning requires planning, managing, and facilitating.

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## **CHAPTER ONE: INTRODUCTION**

### **Introduction**

Meaningful and worthwhile learning could be facilitated in a collaborative learning environment where a variety of perspectives were presented and misconceptions were identified (Garrison, Anderson, & Archer, 2000). Through the processes of interaction and negotiation, students could take an active and constructive role in the learning process. As well, collaborative learning environments could be enhanced through the use of technology integration which has opened the door to new teaching and learning spaces in higher education institutions. Synchronous and asynchronous communication technologies have provided a greater opportunity for collaboration to occur in an online learning environment. Experts, instructors, facilitators and students from different locations around the world are able to connect and engage intellectually, mentally, socially, and culturally to achieve common learning goals. Research in recent years has indicated that online collaborative learning has been successfully used in online learning environments (Dewiyanti, Brand-Gruwel, Jochems, & Broers, 2007).

### **Purpose of the Study**

The purpose of this study was to explore instructors' and students' experiences with collaborative learning in online graduate courses while analyzing the collaborative learning process. The research was aimed at addressing the following three questions:

- What are the essential conditions required to support student collaboration in a higher education online learning course?
- How do the course design and the nature of the assignments influence the degree to which students participate in collaborative learning?

- What structures and scaffolds need to be in place to support student collaboration in online course environments?

### **Context of the Study**

Online education is expanding rapidly around the world. In order to attract learners, educators are looking for innovative ways to meet learners' needs. Employing technology in education has opened doors for educators to implement collaborative learning in online education, which could reduce the potential for learner isolation that can sometimes occur during the online course and help students to gain a deeper level of constructing knowledge while moving from independence to interdependence, thereby achieving the desired outcomes (Palloff & Pratt, 2007). Because of these positive effects, collaborative learning is often the preferred instructional procedure in education (Johnson, Johnson, & Smith, 2007). Chen, Benton, Cicutelli, and Yee (2004) explained that the importance of implementing collaborative learning in the online environment is "to create real world environments that employ the context in which learning is relevant, and to focus on realistic approaches to solving real-world problems" (p.5). The key question was how educational institutions could provide a meaningful collaborative learning experience for online learners. Thus, my objective in the research was to identify factors that influenced a meaningful collaborative learning experience while also identifying what the necessary structures and scaffolds were that needed to be in place to support online collaborative learning.

### **Rationale of the Study**

Collaborative learning is one of the most adapted theories of online learning (Tu, 2004). By implementing collaborative learning theory several significant advantages are provided such as the expression of multiple perspectives which subsequently develop critical thinking skills

through the process of negotiation, judgment, and support (So & Brush, 2008). However, the challenge then becomes how to provide the meaningful collaboration experience to online learners. The collaboration experience could be understood through the multiple perspectives of the online instructors and students who made up the whole cast of the research scenario. These perspectives provided valuable information with which to identify the essential conditions that best supported and fostered collaboration in online courses. According to several researchers (Biasutti, 2011; Gilbert, Morton & Rowley, 2007; Seddon & Biasutti, 2009), there has been little research conducted on participants' perspectives about the online collaboration experience. Moreover, there was limited research on the collaboration process within online courses, such as how participants engage, interact, negotiate, and work (McConnell, 2006). Research had focused on the outcomes of the online collaborative process and on students' satisfaction but there had been limited attention paid to the process of collaboration.

I believe that studying the collaboration experience based on the process and outcomes through multiple perspectives of instructors and students has great potential in helping to design and implement collaborative learning in the online environment. Instructional designers, online facilitators, and learners will have a deeper understanding of such strategies, guidelines, scaffolding, and structures, all of which could have a powerful impact on collaborative learning in online courses. Researchers need to be mindful of questions such as: what are the essential conditions required to support students' collaboration? what factors have to be considered in designing online collaborative courses to encourage learners to interact actively? what kinds of strategies and instructions are needed to enhance the collaboration process and outcomes? how do learners collaborate with each other during online learning and what do they reflect upon

during their collaboration process? By addressing these kinds of questions, stakeholders are better positioned to enhance online collaborative learning.

### **Significance of the Study**

Why was it important to explore online instructors' and students' experiences with collaborative learning? Why was it important to study the online collaboration process? A number of authors (Biasutti, 2011; Seddon & Biasutti, 2009) reported that written research on online collaborative learning has not examined participants' perspectives with regard to online collaborative learning experiences.

My study was designed to explore the dynamics and development of the collaborative learning process in an online course environment at the graduate level. My aim was to contribute to the literature by presenting more research on online collaborative learning through the involvement of online participants while employing a variety of qualitative data collection techniques. The findings are important and of particular interest to instructional designers and online instructors as they explore different ways of enhancing collaboration in online course environments.

### **Theoretical Framework**

Collaborative learning is a personal philosophy rather than a classroom technique according to Panitz (1997). He stated that,

In all situations where people come together in groups, it suggests a way of dealing with people, which respects and highlights individual group members' abilities and contributions. There is a sharing of authority and acceptance of responsibility among group members for the group's action (p.4).

Collaborative learning can engage learners by building their knowledge, sharing their perspectives, creating interdependence among them, and applying active social interaction principles. Collaborative learning requires positive interdependence, individual accountability, commitment, and responsibility in order to achieve the goal. “Good learning, like good work, is collaborative and social, not competitive and isolated. Sharing one’ ideas and responding to others; improves thinking and deepens understanding” (Gerdy, 1998).

Research on collaborative learning is guided by the social constructivism theory (Johnson & Johnson, 1996). The constructive view of learning, as defined by Duffy and Cunningham (1996), involves: “ 1) an active process of constructing rather than acquiring knowledge and 2) instruction is a process of supporting that construction rather than communicating knowledge” (p.171). Social constructivism theory studied by Vygotsky (1978) theorized that knowledge is socially constructed through collaboration in order to understand and solve problems. According to So and Brush (2008), cognitive development is dependent on social interaction and collaboration with “more capable and knowledgeable others” (p. 320). Collaboration processes encourage learners to construct knowledge by sharing their own understandings, and trying to negotiate a shared understanding (McAlpine, 2000). This way of interacting with other learners through sharing, discussing, and negotiating facilitates knowledge construction. Mayes and McAleese (1993) reported that learners need to participate in “cooperative learning in which the learner is exposed to alternative viewpoints that challenge initial understanding” (p.243).

Collaborative learning is complex in an online learning situation. McConnell (2006) referred to three approaches for analyzing group collaboration in online learning: the process of group work, social presence, and the outcomes and products of the group’s work. First, the process of group work is central to online collaborative learning since it is related to the

participants' abilities to develop in-depth discussions, question, and contribute to the work.

Students should strive to support each other by planning the learning process together and maintaining their work. This will help them achieve their individual and group learning goals.

Participants should discuss the learning content, determine strategies, contribute ideas, and handle internal conflicts in order to achieve the desired outcome (Dewiyanti et al., 2007).

Second, social presence is related to the degree of "openness" between the group participants and is particularly important for the group's well-being. Garrison (2009) defined social presence as

"the ability of participants to identify with the group or course of study, communicate

purposefully in a trusting environment, and develop personal and affective relationships

progressively by way of projecting their individual personalities" (p.15). Last, the outcomes and

products refer to the results of the participants' productions and included course assignments,

projects, the construction of artifacts, and the ideas expressed during online debates. Overall,

analyzing online collaborative learning requires examining: 1) the process of group work; 2)

social presence; and 3) the outcomes and products of the group's work as explained by

McConnell (2006).

Using the collaborative learning theoretical framework in the current study helped me to examine the dynamics of collaborative learning in online graduate course context. Understanding the nature of collaborative learning that depends on social interaction among learners helped me analyze the process of collaboration.

## Definition of Terms

For the purposes of this study, the following terms were defined:

- **Asynchronous:** “A type of communication that can occur at any time and at irregular intervals, meaning that people can communicate online” (Palloff & Pratt, 1999, p.189).
- **Collaboration:** “A coordinated, synchronous activity that is the result of a continued attempt to construct and maintain a shared conception of a problem” (Roschelle & Teasley, 1995, p. 70).
- **Community:** “Groups become communities when they interact with each other and stay together long enough to form a set of habits and conventions and when they come to depend upon each other for the accomplishment of certain ends” (Wilson & Ryader, 1996, p.6).
- **Online learning:** Learning that is delivered by computer technology via Internet.
- **Online Collaborative Learning:** Implement collaborative learning as the main strategy in which students participate actively and interact with instructors and other participants to construct knowledge in an online environment.
- **Online Learning Community:** “Groups of people, connected via technology-mediated communication, who actively engaged one another in collaborative, learner-centered activities to intentionally foster the creation of knowledge, while sharing a number of values and practices” (Ludwig-Hardman, 2003, p. iv).

- **Synchronous:** “A type of communication in which those communicating do so at the same time. An example is a chat room where people are all typing at the same time” (Palloff & Pratt, 1999, p. 191).

### **Organization of the Study**

This study of online collaborative learning was organized into seven chapters:

- Chapter 1- Introduction
- Chapter 2- Review of literature
- Chapter 3- Research methodology
- Chapter 4- Research findings for Case One
- Chapter 5- Research findings for Case Two
- Chapter 6- Cross case analysis and discussion
- Chapter 7- Research conclusion and recommendations.



## CHAPTER TWO: LITERATURE REVIEW

In this chapter, I provided a review of historical and current research related to online collaborative learning. The chapter was organized into the following six sections:

- Online learning;
- Collaborative learning;
- Online collaborative learning;
- Process of online collaborative learning;
- Online collaboration challenges; and
- Overview of the current research on online collaborative learning.

### **Online Learning**

Online learning has its roots in distance education, and has been described as access to learning experience through the use of certain technological tools (Benson, 2002; Carliner, 2004; Conrad, 2002). Different terminology has been used for online learning such as e-learning, web-based learning, Internet learning, distributed learning, computer assisted learning, and distance learning. Since there are so many terms to designate this type of learning, generating a truly accurate definition is challenging (Ally, 2008). However, Ally (2008) defined online learning as:

The use of Internet to access learning materials; to interact with the content, instructors, and other learners; and to obtain support during the learning process in order to acquire knowledge, to construct personal meaning, and to grow from the learning experience (p.17).

Online learning gives students the opportunity to participate in courses without having to be physically present at a specified location. With the communication capabilities of the Internet, students have access to learning content and can interact with instructors and other students. Educational institutions have increased the availability of online programs for students who are considered non-traditional or are unable to attend traditional “classroom” environments (Rudestam, 2010). Online programs have also grown “to meet the need for increased continuing and professional education, increased retention and degree completion, and accessibility for new students outside their catchment areas” (Rudestam, 2010, p.7).

Online learning can refer to various degrees based on online instruction: online courses could be delivered completely online via Internet, or could be blended to combine both online elements with traditional face-to-face elements. In addition, online courses can be synchronous or asynchronous (Palloff & Pratt, 2007). Synchronous learning occurs when students engage in learning activities at the same time through the use of computer-mediated communications (CMC) such as web conference, teleconference, or chat rooms. Asynchronous learning occurs when students engage in learning activities at separate times. Asynchronous communication tools are usually text-based such as email, wikis, blogs, Google doc, or any discussion forums (Clark & Mayer, 2008). In Rockinson-Szapkiw, Baker, Neukrug, and Hanes’s (2010) comparative study, they found that students who used both synchronous and asynchronous communication forums had higher level of social presence than students who just used asynchronous communication forum. However, they did not find any difference between the two groups in terms of cognitive presence, instructor presence and perceived learning.

Online learning is collaborative and interactive (Bonk, 2009; Palloff & Pratt, 2007).

Learning is an active process in which both instructors and students must participate and interact to be successful (Palloff & Pratt). Therefore, online learning is not only about access to content, rather it is about communication and interaction with instructors and peers. The key to successful online learning is building an effective online learning community, “without the support and participation of a learning community, there is no online course” (Palloff & Pratt, p.40). The significance of developing online community has become a parallel stream to exploring learning content (Palloff & Pratt).

**Online learning community.** Community is “a social organization of people who share knowledge, values and goals” (Jonassen, Peck & Wilson, 1999, p.118). Rovai (2002) identified key elements that define community such as interdependence, sense of belonging, connectedness, spirit, trust, interactivity, common expectations, and shared values and goals. Ludwig-Hardman (2003) defined online learning communities as “groups of people, connected via technology-mediated communication, who actively engage one another in collaborative, learner-centered activities to intentionally foster the creation of knowledge, while sharing a number of values and practices” (p. iv). According to Tu and Corry (2003), “a successful online collaborative learning community is one in which members connect and engage intellectually, mentally, socio-culturally, and interactively in order to achieve their common learning goals via communications technology tools” (p. 53). The online community of learning is essential to support collaborative learning and discourse associated with a higher level of learning (Garrison & Arbugh 2007; Shea, 2006). Palloff and Pratt (2007) suggested the following indicators for an effective online learning community:

- Active interactions with both course content and other participants;
- Collaborative learning evidenced by students' interaction with each other;
- Socially-constructed knowledge through agreement or questioning of issues;
- Exchange of resources among students;
- Expression of support and encouragement between students;
- Willingness to critically evaluate the work of others.

Fostering a sense of community in online learning is significant because it reduces feelings of isolation during online learning, increases persistence in courses, improves learners' attitudes toward the course and content, and increases student retention (Wilson, Ludwig-Hardman, Thornam, & Dunlap, 2004). Moreover, the strong sense of community increases "the flow of information among all learners, availability of support, commitment to group goals, cooperation among members, and satisfaction with group efforts" (Rovai, 2002, p.3).

Lock (2003) asserted that "community is not a product or entity that can be built. Rather, it is a process that is organic in nature... it depends on relationships and building relationships" (p.12). Focusing on a social presence may have been an appropriate and important place to begin the study of online learning (Garrison & Arbaugh, 2007).

**Social presence.** Social presence has been an important factor in online learning. Gunawardena and Zittle (1997) defined social presence as the degree to which a person is perceived as 'real' in mediated communication. Social presence within the online environment is "the ability of participants to identify with the group or course of study, communicate purposefully in a trusting environment, and develop personal and affective relationships

progressively by way of projecting their individual personalities” (Garrison, 2011). Harasim, Hiltz, Teles, and Turoff (1996) stated that:

Social communication is an essential component of educational activity. Just as face to face school or campus provides places for students to congregate socially, an online educational environment should provide a space, such as virtual cafe, for informal discourse. The forging of social bond has important socioaffective and cognitive benefits for the learning activities. (p. 137)

Social presence has been studied extensively in the educational setting for both face-to-face and online learning environments (Garrison & Arbaugh, 2007). It has a strong correlation with online learner satisfaction (Garrison & Arbaugh, 2007; Garrison, Cleveland-Innes & Fung, 2010; Richardson & Swan, 2003), as well as a sense of belonging to a community (Picciano, 2002). Richardson and Swan (2003) also demonstrated a strong link between social presence and perceived learning. Moreover, the relationship between social presence and collaboration has been examined (So & Brush, 2008). So and Brush (2008) found that students with high perceptions of collaborative learning also had high perceptions of social presence. To understand this relationship, Garrison et al. (1999) explained that social presence is a critical factor for developing a successful community of inquiry. In addition to this, students must feel a sense of belonging and trust in order to recognize collaboration between one another as a valuable learning experience. Therefore, social presence is not the catalyst for collaboration; instead it is a factor that affects the attitude of participants towards collaborating on a particular task (Weinel, Bannert, Zumbach, Hoppe & Malzahn, 2011).

Caspi and Blau (2008) identified three types of social presence: social presence as a perception of others, social presence as a self-projection and social presence as a social identification. Rogers and Lea (2005) studied the effects of social presence and concluded that sharing a social presence identity improves the group's cohesion and productivity. The indicators of social presence that have emerged in online classes include the use of affective expression, humour, social sharing, expression of feelings and agreement, acknowledgment of others, addressing or referring to the group using inclusive pronouns, and the use of textual paralinguistic such as emoticons, font colors, and symbols for expression (Garrison & Arbaugh, 2007; Palloff & Pratt, 2007).

Learning social activities should be designed to provide an opportunity for students to interact formally and informally with peers (Garrison, 2006). Some of these activities, which establish a climate of trust and comfort within the community for collaboration, would involve introduction activity in which learners' introducing themselves and sharing personal and professional interests (Garrison, 2006). It is also possible to create a "chat" room for informal discussion that allows students to become familiar with each other (Garrison, 2006). Instructors should provide instruction on proper messaging etiquette as well as an appropriate model for responses in order to help develop social relationships (Garrison, 2011).

**Online interaction.** Interaction is defined as "reciprocal events that require at least two objects and two actions" (Wagner, 1994, p. 8) and plays an essential role in any powerful learning environment (e.g., face-to-face, blended learning, online learning) (Woo & Reeves, 2007). Learning through social interaction is a key concept of the social constructivism learning theory. Interaction during the learning process is a necessary and fundamental tool for the

acquisition of knowledge and development of both cognitive and physical skills (Woo & Reeves, 2007).

Many types and patterns of online interaction have been identified in the literature. Moore (1989) identified three types of interaction in distance education: learner-content, learner-instructor, and learner-learner interaction. Hillman, Willis, and Gunawardena (1994) later added a fourth type of interaction, learner-interface, which was defined as “a process of manipulating tools to accomplish a task” (p.34). Garrison and Anderson (2003) also identified three types of interactions: teacher- content, teacher-teacher, and content-content. Among these different types of interaction, those identified by Moore are the most prevalent in distance education research and practice. I discuss each of Moore’s (1989) types of interaction in the following sections.

The first interaction is described as the learner-content interaction which is the central component of formal education (Anderson, 2008). According to Moore (1989), learner-content interaction is the process of intellectually interacting with content in such a way that allows learners to receive new information or knowledge which ultimately results in a new understanding, perspective, or cognitive structure in their minds. Learner-content interaction may include searching for information, reading text, watching instructional video, working on project, completing assignments, interacting with multimedia, or using cognitive support software (Kanuka, 2011).

The second interaction is the learner-instructor interaction which is essential to the learning process for promoting an efficient learning experience. According to Moore (1998), during learner-instructor interaction, the instructor seeks “to stimulate or at least maintain the student’s interest in what is to be taught, to motivate the student to learn, to enhance and

maintain the learner's interest, including self-direction and self-motivation'' (p. 2). By interacting with each learner, the instructor can explain misunderstandings, elaborate abstract concepts, and help students achieve learning outcomes.

The third interaction is the learner-learner interaction. This type of interaction is enhanced through the use of asynchronous and synchronous communication tools. Learner-learner interaction occurs "between one learner and another learner, alone or in group settings, with or without the real-time presence of an instructor" (Moore, 1989, p. 4). This type of interaction is primarily found in implemented collaborative learning where learners construct knowledge, share experiences and present perspectives in an online learning environment (Rovai, 2001, 2002).

The role of the online instructor is to facilitate learning and encourage peer interaction (Thompson & Ku, 2006). Online interaction has affected positive effect on students' learning experience in that it can help build online learning communities (Rovai, 2001, 2002). Instructors often establish guidelines for participation to encourage students to interact with content and with peers and thus facilitate the building of a community (Palloff & Pratt, 2007).

**Online instructor.** The instructor's role in online learning is as a facilitator rather than content provider (Anderson, Rourke, Garrison, & Archer, 2001). Online learning is a student-centered educational environment in which the instructor provides guidelines and a framework for the course, thus allowing students to collaborate, build and develop their understanding of the learning content (Palloff & Pratt, 2007). The online instructor's role can be divided into four categories: pedagogical, social, managerial, and technical (Berge, 1995). The pedagogical role



centers on educational facilitation such as providing feedback, direct instruction, models or examples, pushing students to explore other sources of information, and prompting students to explain or elaborate on their ideas (Teles, Ashton, Roberts, & Tzoneva, 2001). The social role involves creating a friendly social environment that encourages learners to express emotions, ideas and promotes collaboration. The managerial role includes activities that make a course “run smoothly” (Teles et al., 2012, p.46). Management roles include three categories: managing individual students; managing discussion and working groups; and managing course functions (Teles et al., 2012). The technical role includes choosing software that meets specific learning goals and ensuring that students feel comfortable using it.

Based on the community of inquiry model, Anderson, Rourke, Garrison, and Archer (2001) noted that while the teaching presence is generally the role of the instructor, it may sometimes be shared among learners. Online instructors may encourage the development of a teaching presence among students by asking them to facilitate a topic of interest or a weekly discussion. Anderson et al. (2001) categorized the role of the teaching presence into instructional design and organization, discourse facilitation, and direct instruction.

- Instructional design and organization: The indicators of this role involve setting a curriculum, designing methods, establishing time parameters, using media effectively, and establishing netiquette (Anderson et al., 2001).
- Facilitating discourse: The indicators of this role include identifying areas of agreement and disagreement, seeking to reach understanding, encouraging and acknowledging students’ contributions, drawing in participants and prompting

discussion, setting a climate for learning, and assessing the efficacy of the process (Anderson et al., 2001).

- Direct instruction: The indicators of this role include presenting content and questions, focusing the discussion on specific issues, summarizing the discussion, confirming understanding through assessment and explanatory feedback, diagnosing misconceptions, providing diverse sources (e.g., textbook, articles), and responding to technical concerns (Anderson et al., 2001).

In addition to designing, facilitating, and managing the learning process, online collaborative instructors should ensure that the group works effectively by providing assistance and feedback and discussing with group members the progress of their work.

**Online learner.** Not all students are ready to be online learners. Fink (2003) described the need to teach students how to learn. He proposed three elements that should be taught: how to become better learners, how to inquire and construct knowledge and how to become self-directed. The Illinois Online Network (2006) described the characteristics of successful online students as:

- Open-minded about sharing life, work, and educational experiences as part of the learning process.
- Able to communicate through writing.
- Self-motivated and self-disciplined.
- Willing to "speak up" if problems arise.
- Willing and able to commit to four to fifteen hours per week per course.

- Able to meet the minimum requirements for the program.
- Accept critical thinking and decision making as part of the learning process.
- Able to think ideas through before responding.
- Feel that high quality learning can take place without going to a traditional classroom.

According to Palloff and Pratt (2007), the role of the online learner can be understood in three categories: knowledge generation, process management, and collaboration. First, online students are responsible for seeking information, and building knowledge. They are expected to view problems from different perspectives, and question the assumption presented by the instructor and other learners, as well as their own assumptions and ideas (Palloff, & Pratt, 2007). Learners should gather additional resources beyond the learning material to develop their research skills.

Second, the role of a process manager that emerges organically from group. Students who take this role will ask clarifying questions that other members of the group have been too shy to ask (Palloff & Pratt, 2007). Also, process managers will point out any inconsistencies as they occur and seek to clarify tasks. However, all online learners should be active, participate with minimal guidelines, express their feelings, and be responsible of the formation of an online learning community (Palloff & Pratt).

Third, online students should be willing to collaborate with peers. In this learning environment, students are expected to work together to generate a deeper understanding of the material and be a critical evaluator. They are expected to present their perspectives, and negotiate their ideas.

**Online teaching and learning models.** Online educators have developed and implemented some instructional models in current online educational practices. One of these models that supports and encourages collaboration is Phases of Engagement (Conrad & Donaldson, 2004). The goal of the Phases of Engagement is to provide an effective model to help students transition from being a novice online learner to a contributing member of a learning community. Their model illustrates the online instructors and students' new roles in each phase. The following table illustrates each phase, learner role, instructor role, suggested time frame, and the related process for each phase with a standard 12-16 week course.

Table 1

*The Phases of Engagement, (Conrad & Donaldson, 2004). Reprinted with permission.*

<b>Phase</b>	<b>Learner</b>	<b>Instructor</b>	<b>Weeks</b>	<b>Process</b>
1	Newcomer	Social Negotiator	1-2	Instructor provides activities that are interactive and help the learners get to know one another. Expresses expectations for engagement in the course. Provides orientation to course and keeps learners on track.
2	Cooperator	Structural Engineer	3-4	Instructor forms dyads of learners and provides activities that require critical thinking, reflection and sharing of ideas. Examples: Peer reviews, activity critiques.
3	Collaborator	Facilitator	5-6	Instructor provides activities that require small groups to collaborate, problem solve, reflect upon experiences. Examples: content discussions, role-plays, debates, and jigsaws.
4	Initiator/Partner	Community Member / Challenger	7-16	Activities are learner-designed and/or learner- led. Group presentations and projects. Discussions begin to go not only where the instructor intends but also where the learner directs them to go. Examples: Group presentations and projects, learner-facilitated discussions.

## **Summary**

At its best, online learning has become more interactive, engaging, and collaborative. It is a learner-centered environment in which students are encouraged and enabled to take autonomy for their own learning. Learners interact with each other to construct knowledge, while instructors facilitate and manage the learning process. Building an online learning community helps to support and foster student collaboration. With the expansion of networking, instructors and learners are able to interact and collaborate more effectively in an online learning environment.

## **Collaborative Learning**

Collaborative constructivism can be traced back to Dewey (1916), who believed that meaningful educational knowledge is a process of continuous and collaborative reconstruction of experience. Roschelle and Teasley (1995) believed that learning is enhanced when students are placed in collaborative situations. They defined collaboration as a “coordinated, synchronous activity that is the result of a continued attempt to construct and maintain a shared conception of a problem” (p.70). In addition, Tu (2004) defined collaboration as “a small group of learners in the instruction encouraging them to maximize their own, and each other’s learning” (p.12). Meaningful and worthwhile learning outcomes are facilitated in a collaborative environment where learners are recognized and supported and a variety of perspectives are presented (Garrison, Anderson & Archer, 2000). Collaboration is a method of learning that uses social interaction as a means of knowledge building (Dennen, 2000). Learners build knowledge through dialogue where different perspectives are presented, ideas are negotiated, and misconceptions are resolved. Therefore, collaboration encourages learners to apply social interaction, engage

actively in the learning process by sharing, and negotiating their perspectives and depending on each other (Tu, 2004). Brindley, Walti, and Blaschke (2009) argued that “collaborative learning processes assist students to develop higher order thinking skills and to achieve richer knowledge generation through shared goals, shared exploration, and a shared process of meaning making” (p.3). Through the process of interaction, searching and negotiation learners have an active and constructive role in the process of knowledge acquisition (Ingram & Hathron, 2004).

The pedagogical benefits of collaborative learning include:

- Development of critical thinking skills
- Co-creation of knowledge and meaning
- Reflection
- Transformative learning (Palloff & Pratt, 2005, p.4)

There are three crucial elements to collaboration: participation, interaction, and synthesis (Ingram & Hathron, 2004). Participation is the main factor in the collaboration process. Each member in a group should participate actively during the learning process. Interaction requires that group members actively respond to each other. Ingram and Hathron (2004) explained that “the interaction in a group provides some insight into how individuals learn through discussion as they share information and test ideas” (p. 220). Synthesis refers to the product of the collaboration process, which group members are responsible for creating, and represents a synthesis of ideas and input from each member (Ingram & Hathron, 2004). Collaboration requires that learners be granted authority and are actively engaged in the learning process (Tu, 2004). Instructors shift their authority to the learners, and provide the learning foundation and structures to guide learners during collaboration tasks (Tu, 2004).

However, collaborative learning is often used interchangeably with cooperative learning (McInnerney & Roberts, 2004) perhaps because they have similar characteristics, including:

- Learning should be active;
- Teachers act as facilitators;
- Students participate in small groups;
- Students must take responsibility for their learning;
- Students develop social skills through consensus building (Barkley, Cross, & Mayor, 2005).

**Cooperative learning.** Cooperative learning is defined as “the instructional use of small groups so that students work together to maximize their own and each other’s learning” (Johnson & Johnson, 1996, p. 786). Johnson and Johnson (1994) identified five essential elements for successful cooperative learning:

- **Positive interdependence:** It is the perception that members of a group are linked with each other so that they cannot succeed on the group task unless all the members in the group succeed. Positive interdependence is important for any type of teamwork, since to accomplish anything groups must agree upon a shared mutual goal (Johnson & Johnson, 1994).
- **Individual and group accountability:** The group is held accountable for achieving the goal. Additionally, each learner is responsible for his or her own learning and achievement while he or she is working interdependently with the group (Johnson & Johnson, 1994).



- Promotive interaction: Group members encourage and support each other to achieve the common goal. Characteristics of promotive interaction include mutual help, exchange of resources, personal support, praising others' efforts, respectfully challenging each other's reasoning, and personal commitment to group members (Johnson & Johnson, 1994).
- Teamwork skills: Although learners can be placed in groups and asked to cooperate, they may not have the necessary social skills to interact successfully. “Team work skills should be taught” (Barkley et al., p.10) and scaffolded (Johnson & Johnson, 1994).
- Group processing: Occurs when students discuss and plan their work and the ways in which they will achieve the goal. There can be significant advantages to discussing the group work by identifying helpful and unhelpful actions and ways to improve the group process. These advantages can include students learning effective team work and communication skills, allowing members to voice concerns, and helping students to practice metacognitive thinking (Johnson & Johnson 1994).

**Collaborative versus cooperative learning.** Like cooperative learning, collaborative learning also requires Johnson and Johnson’s (1994) elements in order to be successful. Though they have similar characteristics, they also differ in certain important aspects such as structure, authority, working processes, individual’s contribution, and origins. To distinguish between the two terms it is important to understand the viewpoints of researchers in the field. Panitz (1997) distinguished the terms collaboration and cooperation as:

Collaboration is a philosophy of interaction and personal lifestyle where individuals are responsible for their actions, including learning and respect the abilities and contributions of their peers; Cooperation is a structure of interaction designed to facilitate the accomplishment of a specific end product or goal through people working together in groups (Panitz, 1997, p.2).

In a cooperation model, instructors have the authority and maintain control of the learning process to ensure success (Panitz, 1997). Instructors assign learning tasks, manage time and resources, monitor students' learning, and check the group progress (Barkley et al., 2005). Contrastingly, in a collaboration model, the authority of learning is shifted to students with the assumption that students have the necessary teamwork skills and autonomy required to govern themselves and manage their group work (Millis & Cottell, 1998). Instructors become “a member along with students, of a community in search of knowledge” (Barkley et al., 2005, p. 6). Therefore, collaborative learning is learner-centered whereas cooperative learning is more teacher-centered (Panitz, 1997).

The second distinction is based on the working process. Delilenbourg (1999) distinguished collaborative learning from cooperative learning where “in collaboration, partners do the work together” and “in cooperation, partners split the work, solve sub-tasks individually and then assemble the partial result into the final output” (p.11). Roschelle and Teasley (1995) also had a similar point of view and made the following distinction between the two terms: “cooperative work is accomplished by the division of labour among participants, as an activity where each person is responsible for a portion of the problem solving” (p. 70). In contrast, collaborative work involves “the mutual engagement of participants in a coordinated effort to

solve the problem together” (p. 70). Collaboration is unstructured compared to cooperation because division of labour is not required. Instead, collaborative activities require learners to complete the group task together through dialogue (Paulus, 2005). Therefore, the purpose of cooperative learning is to accomplish the task as a group and co-create an end product in harmony and through mutual support to find the solution. However, the goal of collaborative learning is to efficiently develop critical thinking through interaction, negotiation, and evaluation of ideas and views (Barkley et al., 2005).

In another comparison, McInerney and Roberts (2004) distinguished collaboration from cooperation by highlighting the role of the individual’s contribution to group work. They defined collaborative learning as “an adjective that implies working in a group of two or more to achieve a common goal, while representing each individual’s contribution to the whole” (p.205). In contrast, they defined cooperative learning as “an adjective meaning to work or act together as one to achieve a common goal, while tending to de-emphasize the input of particular individuals” (p.205).

Bruffee (1995) and Tu (2004) concluded that cooperative learning is best suited for K-12 students who are learning mostly foundational, well-structured information, while collaborative learning is more appropriate for university students who are learning to construct non-foundational knowledge.

### **Online Collaborative Learning**

Collaborative learning has been the most powerful principle of online course design and delivery (Palloff & Pratt, 2007). It could significantly reduce the potential for learner isolation that can sometimes occur during the online course, help students gain a deeper level of constructing knowledge while moving from independence to interdependence, thereby achieving

the desired outcomes (Palloff & Pratt, 2007). Online collaboration has been defined as “an educational endeavor that involves people in different locations using Internet tools and resources to work together” (Harris, 1999, p.55). Chen, Benton, Cicutelli, and Yee (2004) explained that “the purposes of technology collaboration are to create real world environments that employ the context in which learning is relevant, and to focus on realistic approaches to solving real-world problems” (p.5). Conrad and Donaldson (2004) stated, “Collaborative acquisition knowledge is one key to the success of creating an online environment. Activities that require student interaction and encourage a sharing of ideas promote a deeper level of thought” (p.5).

Several elements in an online collaboration environment may influence students’ participation. The key elements are course characteristics, individual characteristics, various aspects of the collaborative learning process, and satisfaction (Dewiyanti et al., 2007). First, course characteristics may include the group size and the type of product that students collaborate on in order to accomplish the desired goal. Group size influences students’ participation in collaborative tasks (Johnson & Johnson, 1994). Collaborating in a small group is better for encouraging non-active students, increasing individual contribution, and promoting a higher sense of presence and engagement (Dewiyanti et al., 2007; Wang, 2011). Second, individual characteristics such as students’ opinions about collaboration and the use of technology might affect participation in a collaborative learning process (Dewiyanti et al., 2007). Third, collaborative learning process refers to the dynamic of group work to accomplish a task. Students should plan the learning process together and maintain their work by supporting each other in order to achieve the learning goal. Participants should discuss the learning content, determine strategies, contribute ideas, and handle internal conflicts in order to achieve the

desired learning goal (Dewiyanti et al., 2007). Fourth, student satisfaction was described as “the degree to which a learner feels a positive association with his or her collaborative learning experience” (Dewiyanti et al., 2007, p.489).

McConnell (2006) referred to three approaches for analyzing group collaboration in online environments: the process of group work; social presence; and the outcomes and products of group work. The process of group work is related to the participants’ abilities to develop in-depth discussions and to question and contribute to the group work. Social presence is related to the degree of “openness” between the group participants and is particularly important for the group’s well-being. The outcomes and products refer to the results of the participants’ productions and may include course assignments, projects, the construction of an artifact, and the ideas expressed in online debates.

Tu (2004), however, mentioned four important issues that must be considered when implementing collaboration in online learning: empowering learners, continuing support, being patient and building community.

- Empowering learners: Collaborative activities require that learners be empowered to take charge of the learning process (Tu, 2004; Palloff & Pratt, 2005). Students should be accountable for their learning. Online instructors act as facilitators who guide learners through different learning tasks to accommodate different learning styles.
- Continuing support: Instructors provide intellectual, technical, social, mental and emotional support throughout the learning process to foster collaboration in online learning. The objective of collaboration must be explained clearly to learners who will become involved in independent learning when they understand the process and have appropriate support (Tu, 2004). Learners must be also encouraged to understand

the importance of collaborative learning. If they are not, they may focus only on achievement and fail to effectively participate in collaborative learning experiences (Tu & Corry, 2003).

- **Being patient:** Social interaction takes time to develop in online collaborative learning environments (Tu, 2004) because learners require sufficient time to build a social foundation and complete the learning task. Although collaboration takes more time, the outcomes are efficient, and more in depth (Palloff & Pratt, 2005).
- **Building communities:** Learners learn through social interaction within a community (Tu & Corry, 2003). A sense of community should exist in order for collaboration to occur (Johnson & Johnson, 2000) and collaboration activities can help develop this sense of community (Palloff & Pratt, 2005). Therefore, collaboration supports the creation of community while community supports the ability to collaborate (Palloff & Pratt, 2005). Building a meaningful community in which students feel comfortable to present their perspectives, express their ideas and share their thoughts facilitates ongoing collaboration.

### **The Process of Online Collaborative Learning**

**Orienting students.** Collaborative learning requires students to play new roles and develop skills that differ from traditional learning (Barkley et al., 2005). As of the first day of class instructors can begin orienting students to their new roles and helping them develop collaborative learning skills. Several activities can be used in orienting students with collaborative learning: introduction and icebreakers, course policies and procedures, and information about collaborative learning. First, instructors should provide opportunities for students to introduce themselves and allow everyone to get to know each other. This process is

necessary for building a healthy online learning community (Tu, 2004). Second, reviewing the course syllabus and policies such as explaining the concept, purpose and expectations of online collaborative learning could reduce potential future problems at the group or individual level. Additionally, the instructional design of the course, task and assessments can be thoroughly identified and the roles of both instructors and students can be clarified (Barkley et al., 2005).

Further, students come to class with a range of experiences and attitudes regarding to collaborative work. However, some students choose online courses so they can work individually. Barkley et al. (2005) suggested that instructors could use activities to help students understand the value of collaborative learning such as a threaded discussion that provide students the opportunity to share and negotiate their perspectives on the advantages and disadvantages of collaborative work, and the ways in which they can enhance their collaborations. In addition, instructors could minimize the use of synchronous activity, and instead focus on the advantages of asynchronous activity especially when students' schedules do not permit them to commit to specific times and dates (Barkley et al., 2005).

Students need to be taught the necessary skills for effective online collaboration (Curtis & Lawson, 2001). There is evidence that teaching learners how to collaborate and work together to create meaning can enhance outcomes (Nussbaum, Alvarez, McFarlane, Gez, Claro, Radovic, 2009). Bosworth (1994) proposed a taxonomy of collaborative skills that includes interpersonal skills (e.g., listening skills, friendly, positive communication), group management skills (e.g., organizing work, keeping students on task, showing empathy, running a meeting), inquiry skills (e.g., clarification, critique, probe assumptions and evidence, probe implication and consequences, elicit viewpoints and perspectives), conflict resolution skills (e.g., prevention,

resolution, mediation), and synthesis and presentation skills (e.g., summarize, synthesize, creating presentation materials, report writing). Some of these skills could be modeled by instructors, but the main method of teaching collaborative skills lies in the design of the learning task (Barkley et al., 2005). Chapman, Ramondt, and Smiley (2005) recommended using icebreakers, seeding, or explicit statements about expectations regarding participation, etiquette, and guidelines for effective behaviour. Thus, it is important to conduct an orientation session at the beginning of a course in which students have an opportunity to begin to get to know each other and to review course expectations and guidelines for collaborative learning.

**Forming the collaboration group.** A group forming method has been identified as a key tool to enhance members' participation in small groups (Jahng & Bullen, 2012). Collaborative learning groups vary in type based on the goal, the activity, and the length of time students will work together (Barkley et al., 2005).

Groups can be informal, formal or base (Johnson, Johnson, & Smith, 1991). The informal group is formed quickly, randomly, and members work together for short period of time. This kind of group may be formed frequently and may have new members each time. It can be used for responding to questions, brainstorming ideas, and participating in class activities. The formal group is formed when learners seek to work together over several class sessions or weeks to achieve complex task such as writing report, or giving a presentation. The base group is maintained over a long term period of time in which learners stay together for the entire term or academic year. The purposes of these groups are to achieve the course outcomes and to support and encourage one another (Barkley et al., 2005).



Group size for effective collaborative work usually ranges from two to six members (Barkley et al., 2005). Collaborating in a small group is better for maximizing involvement, encouraging non-active students, and increasing individual contribution (Dewiyanti et al., 2007; Wang, 2011). Generally, the size of the group depends on the type of group, the nature of the assignment, and the duration of the task.

Group membership can be heterogeneous or homogeneous based on members' interest, abilities, attitudes or a host of other characteristics. Research generally supports heterogeneous grouping for the following reason: students will be exposed to different ideas, backgrounds, and experiences which is the educational goal of collaborative learning (Barkley et al., 2005). However, there are certain disadvantages of heterogeneous groups such as students feel uncomfortable with the diversity of opinion and the possibility of tension that may result from disagreement. Also, when using heterogeneous groups there may be fewer opportunities for low achievers to show leadership when high achievers dominate (Barkley et al., 2005).

Homogeneous grouping has some advantages for learning. For example, students feel confident enough to discuss or share ideas when dealing with someone who shares common characteristics (Brookfield & Preskill, 1999). Students may also efficiently master most highly structured skill building tasks since they can communicate with each other on a similar level of knowledge (Barkley et al., 2005). This shows that students prefer working with like-minded students, which thereby improves overall satisfaction with collaborative learning when groups are homogeneous (Barkley et al., 2005). In contrast, the disadvantage of a homogeneous group is that students are not exposed to diverse peers who have different backgrounds, perspectives and ideas. Therefore, deciding on the appropriate group type depends on the goal of the course, and the learning tasks.

Selecting group members could be random, student selected or instructor determined. Random selection is appropriate for informal groups and short assignment times. Instructors can form groups quickly and efficiently using a variety of random selection techniques. Another tactic is for students to choose their own group so they may feel more comfortable and motivated to work together (Brookfield & Preskill, 1999). Student choice tends to create groups based on friendships; consequently some students may feel like outsiders and risk straying from the task at hand (Barkley et al., 2005). The third tactic is instructor determined. This tactic is usually used for formal or base groups. Forming groups could be based on students' interest or characteristics. A group based on similar interests has some advantages to motivating students to collaborate actively on a particular topic that is interesting to them. In contrast this technique has some disadvantages such as reinforcing homogeneity in groups. Selecting members based on characteristics or "stratification" such as demographics or level of academic achievement could be used to form either heterogeneous groups or homogeneous group based on task types.

In Jahng and Bullen's (2012) quantitative study, they investigated forming group strategies by examining participants' behaviour in an online graduate course. The course, which involved 24 students, was designed to include two learning activities: whole class activity and small group activity. They used quantitative techniques to analyze participants' behavior (i.e., amount of participation) in order to identify active and inactive students. Eight out of 24 students were identified as inactive in whole class discussion. Jahng and Bullen also used a correlation analysis with the variable of individuals' participation behavior in whole class discussion to examine the association with small group participation. The result showed that inactive students in the whole class discussion were mostly quiet or even quieter in the small group activity. Only two students showed improvement in their participation when placed in small group activity

rather than whole class discussion. These students were not grouped with other inactive students in the same group, while the inactive students who remained quiet in a small group were grouped with at least one other inactive member in their small groups. As a result, Jahng and Bullen (2012) recommended that instructors mix inactive students with more active communicators when forming groups so as to encourage more active participation. Instructors could schedule small group collaboration activities at a later time in the course in order to have a better understanding of students' participation behaviours. This could help instructors mix and match the students accordingly into small heterogeneous groups (Jahng & Bullen, 2012).

**Group agreement.** Using “team charters” or agreements has been noted as a tool that influences student satisfaction with collaborative learning (Doran, 2001). Agreement serves as a contract among group members, and determines how they will interact, the roles of each member, and the deadlines for completion and submission of the collaborative tasks. Overall, agreement helps to improve group process. After forming group work, members create and assign their team charters to guide their activities. Providing a sample of a team charter to help students understand the concept and then develop their own charter.

**Structuring the collaborative learning task.** Structuring collaborative learning includes designing an appropriate learning task, and structuring procedures to engage students to collaborate actively (Barkley et al., 2005). Several considerations should be considered when designing the collaborative tasks. First, collaborative learning tasks should be relevant to the course objectives and match students' skills and abilities (Barkley et al., 2005). Designing the task should promote positive interdependence, in which each member is responsible to and depend upon each other to succeed (Johnson & Johnson, 2001) and guarantee individual

accountability (Barkley et al., 2005). This can be achieved by structuring the assessment and evaluation in grading individual and group performance (Barkley et al., 2005). Group-work reports can also be used to assist instructors observe and assess each individual contribution while regulating the collaboration process through scheduling each learner's duties. Finally, collaborative learning task design should allow sufficient time for such activities as scheduling, planning, and organizing. Discourse and collaboration require time to allow students to engage actively. Excessive workload affects the quality and depth of learning experiences (Garrison, 2006).

Online instructional models have been developed and implemented to enhance the online collaborative learning process. One of these models is the Stages of Collaboration framework by Palloff and Pratt (2005). The stages of collaboration provide practical guidelines for online instructors to design, implement, facilitate, and evaluate online collaborative learning activities. This framework strongly addresses the process of online collaboration, which is critical because collaboration does not happen automatically; rather instructors need to walk students through the process. Table 2 summarizes Palloff and Pratt (2005) framework.

Table 2

*The Stages of Collaboration Framework*

Stages	Main Tasks
Set the stage	<ul style="list-style-type: none"> <li>• Explaining the importance of the collaborative work;</li> <li>• Providing clear guidelines and instructions for completing the collaborative work;</li> <li>• Supporting students to be comfortable with the technology in use.</li> </ul>
Create the environment	<ul style="list-style-type: none"> <li>• Creating a virtual space for students to collaborate or connect.</li> </ul>
Model the process	<ul style="list-style-type: none"> <li>• Modeling collaborative behaviours and commitments to the learning process.</li> </ul>
Guide the process	<ul style="list-style-type: none"> <li>• Guiding the process of collaborative learning once it begins.</li> <li>• Informing students in advance how the instructor intends to be involved with the process.</li> </ul>
Evaluate the process	<ul style="list-style-type: none"> <li>• Assessing collaborative activities collaboratively through using peer evaluation, team evaluation, and instructor evaluation.</li> <li>• Conducting self-assessments;</li> <li>• Providing clear guidelines and expectations for assessment of collaborative work.</li> </ul>

**Assessment and evaluation of the collaborative work.** Assessment is a very important step in designing the learning experience. In collaborative learning, the fundamental challenge is assessing collaborative group assessments while respecting individual contribution. Assessment is defined as “a progressive process that develops throughout the course, not just an accounting of outcomes at the end” (Diaz, Brown, & Salmons, 2010). In collaborative learning, there is a need for clear expectations and feedback on progress, and fair grading protocols (Diaz, Brown,

& Salmons, 2010). Formative and summative assessments have been used to provide feedback and grading.

Formative assessments provide information and feedback for instructors and students about the learning process in order to identify misconceptions and improve performance. Providing formative feedback on students' performance assists them to know their strengths and weaknesses and thus improve their performance. In Kupczynski, Ice, Wiesenmayer, and McCluskey's (2010) mixed method study, they explored students' perceptions of the impact of teaching presence indicators on their success. Their study involved 362 participants enrolled in a variety of courses. They found that providing formative feedback was the most important indicator for online student success. In addition, providing formative assessments during collaborative learning process is important for instructors to determine whether all participants are contributing, to ascertain needs for additional resources, and to monitor the group work process (Palloff and Pratt, 2005). Formative feedback could be also provided by fellow students in terms of peer review. According to van der Pol, van den Berg, Admiraal and Simons (2008), the advantages of peer feedback method lies in two activities: providing feedback assists students to have an idea of the criteria for the product, and develop a sense of confidence by seeing how their fellow students are performing. Receiving feedback assists students to improve their products.

Summative assessment is formal and occurs at the end of a project or course to evaluate the learning achievement. These assessments are graded and take into consideration individual contributions. According to Johnson and Johnson (1994), the key to successful collaborative learning is maintaining both individual accountability, where students are responsible for their own learning, and positive interdependence, where all students in a group reach their goal

together. The way to ensure individual accountability and positive interdependence is to assess both individual and group learning.

The use of different assessment techniques (i.e. self-assessment, team assessment, and instructor assessment) to evaluate collaborative learning is extremely beneficial for both students and instructors in online learning (Capdeferro & Romero, 2012; Diaz, Brown & Salmons, 2010). According to Tu (2004), collaborative evaluation methods have the potential to reduce the weakness of traditional instructor evaluation methods. Collaborative evaluation includes self-evaluation, peer evaluation and instructor evaluation. This method allows learners to take charge of their learning, which is more appropriate for learner-centered environments, and develops students' awareness of their strengths and weaknesses (Tu, 2004).

Palloff and Pratt (2005) suggested several key points to be considered in evaluating online collaborative work:

- Collaborative work should be assessed collaboratively;
- Clear guidelines should be provided for the assessment of collaborative work;
- Rubrics should be used to facilitate the assessing process and objectivity;
- Learning expectations should be explained to students;
- Learning objectives and collaborative tasks should be aligned with assessments in order to render the assessment task less cumbersome and increases students' satisfaction with the learning experiences.

### **Online Collaboration Challenges**

Although there is a wide spread use of collaborative learning in higher education, there are some factors that challenge students to collaborate effectively. Some of these factors are beyond the control of instructors such as technical issues. Some factors, however, such as group

conflicts, can be dealt with by the instructor (Palloff & Pratt, 2005). According to Palloff and Pratt (2005), the online collaboration challenges could be grouped into four categories: participation, leadership and decision-making, course and activity design, and cultural issues.

**Participation challenges.** Placing individual students into groups and expecting them to collaborate effectively and participate equally rarely occurs without some setbacks. Prior experience affects students' motivations and/or willingness to participate in the collaborative learning process (Dewiyanti et al., 2007). In addition, differences in expectation and willingness to collaborate may cause an issue for online learners (Palloff & Pratt, 2007). Capdeferro and Romero (2012) examined the feelings of frustration as a negative emotion among learners engaged in online collaborative learning experiences. They also identified the sources of the frustration. Their study involved 40 students enrolled at a Masters' course level. A survey method was used to collect data. One of the findings indicated that group members who were unwilling to participate, or did so only minimally, were reported as the main cause of frustration during online collaborative learning. Another challenge of online learning that had been reported was that different schedules among online participants created problems for group meetings to occur and discuss the collaborative task (Capdeferro & Romero, 2012; Wang & Woo, 2007). To deal with participation issues, Palloff and Pratt (2005) suggested the following for online instructors:

- Set the stage for collaboration: As explained previously, students should be taught collaboration skills, provided with clear guidelines and expectations of collaborative learning tasks, and encouraged to use contracts or agreements about how to collaborate and participate with each other.



- Do not encourage over- or under-participation: Instructors should monitor the group collaboration and should intervene when group members struggle during the collaboration process. Overachievers should be slowed down and underachievers encouraged to participate.
- Provide instruction and information about conflict management and resolutions: Conflict resolution and management is considered one of the main tasks that should be accomplished in online learning (Palloff & Pratt, 2005). Students should seek to manage and resolve their conflicts on their own first, and if they can not, they are encouraged to turn to their instructors for help in resolving their issues.

**Challenges in leadership and decision making.** Research has shown that students who prepared for collaborative learning are more satisfied with their learning experiences (Nussbaum, Alvarez, McFarlane, Gez, Claro, & Radovic, 2009). Students should discuss and negotiate their collaboration strategies at the beginning of the task to minimize the possibility of conflicts.

**Course and activity design challenge.** The instructional design is the heart of online collaborative learning. The main goal of instructional design is to create a community of learning where learners are fully engaged in the learning process. Effective planning should include “what to do before, during and after an educational experience in order to achieve learning outcomes”(Redmond & Lock, 2006).

Based on a variety of online learning models, social presence is a critical factor for guiding the course design (Garrison et al., 2000; Palloff & Pratt, 2005; Salloum, 2012). The goal is to reduce feelings of isolation, establish a climate of trust and comfort within the community for collaboration. Learning social activities should be designed to provide an opportunity for students to interact formally and informally with peers (Garrison, 2006).

Students must be encouraged through interactive activities to share their ideas and present their beliefs. A brainstorming activity, or non-threatening questions (i.e., what do you think about...”) may be appropriate at the beginning of the learning experience (Garrison, 2006) to engage students in the learning process. Additionally, online discussion questions should be specific (Wang & Woo, 2007). Specific questions allow students to provide their responses in a timely manner and have time for deeper discussions, reflection, and interactions (Wang & Woo, 2007).

Finally, collaboration requires time in order to allow students to engage actively. According to Garrison (2006), if collaborative learning is required, workload must be seriously considered, because excessive workload affects both the quality and depth of learning experiences. Workload and a lack of time to work collaboratively have been considered as challenges for online students (Capdeferro & Romero, 2012).

**The challenges of cultural differences.** Online learning becomes as a global environment in which students from different cultural backgrounds can attend. Culture plays a critical role in cognitive development of learners through social interaction (Kim & Bonk, 2006). Cultural dominations should be carefully considered in designing and delivering instruction within online courses, specifically in collaborative learning environments (Kim & Bonk, 2006). However, DuPraw and Axner (1997) determined six fundamental patterns of cultural differences:

- Different communication styles: Include language usage, and the importance of non-verbal communication.
- Different attitudes toward conflict: Some cultures welcome conflicts as a positive thing, while others avoid it. According to DuPraw and Axner (1997), written

communication might be a favoured means to resolve conflict when multiple cultures are present.

- Different approaches to completing tasks: Some of the differences between cultures are found in how tasks are completed based on varying access to resources, different notions of time and timelines, different judgments of the rewards associated with task completion, and varied ideas about how and when relationship building should be used to complete the collaborative tasks.
- Different decision-making styles: Individuals' expectations about their role in decision making vary by culture. Some cultures prefer democratic decision making, while other cultures defer to the will of the leader (Palloff & Pratt, 2005).
- Different attitudes toward disclosure: In some cultures people feel uncomfortable about presenting emotions, sharing personal information, and dealing with conflicts.
- Different approaches to knowing: In some cultures learners prefer discovering information through researching literature, while in others learners prefer to learn through experience or discussion with others who have the same experience.

Understanding cultural differences does not mean creating divides but rather helps us to communicate with each other effectively (DuPraw & Axner, 1997). Cultural differences within online collaborative learning does not need to be challenging, instead it can enrich the learning environment and enhance the learning outcomes (Palloff & Pratt, 2005). DuPraw and Axner (1997) suggested that respecting differences, being open to learn from others, listening to one other, and being aware of power imbalances can help learners overcome the challenges of studying cross culturally.

## **Overview of Research on Online Collaborative Learning**

Researchers have investigated online collaborative learning through multiple lenses such as building an online learning community (Garrison et al., 2000, Palloff & Pratt, 2005), students satisfaction (Allen, Bourhis, Burrell & Mabry, 2002; Jung, Choi, Lim, & Leem , 2002; Keengwe & Adjei-Boateng, 2012; Levy ,2007; Nummenmaa & Nummenmaa ,2008) and experience with collaborative learning in online courses (Biasutti, 2011; Dewiyanti et al., 2007). The following is an overview of the recent research in online collaborative learning.

**Building online learning communities.** The importance of building online communities to support collaborative learning in online courses has already been mentioned. Many studies (Garrison & Arbugh 2007; Palloff & Part, 2005; Shea, 2006; Rovia, 2002) provided evidence to suggest that strong feelings of community increase a sense of connectedness among learners, persistence in online courses, availability of support, commitment to group goals, collaboration among learners, and satisfaction with group effort. Learning communities in formal online courses do not emerge naturally; they should be built and developed through structured group activity (Palloff & Pratt, 1999).

New frameworks and methods have been developed and established in order to assist in bulding online learning communities (Garrison, Anderson, & Archer, 2000; Palloff & Pratt, 2007; Tu, 2004). One type of the model that could be used to support online collaborative learning is the Community of Inquiry Framework (CoI), which was developed by (Garrison et al., 2000). The goal of the Community of Inquiry model (CoI) is creating a community for learners to engage in collaboratively constructing meaningful knowledge (Garrison, 2006). According to the CoI framework, learning occurs through the interaction of three core elements: social presence, cognitive presence, and teaching presence (Garrison et al., 2000).

The first element of the CoI framework is social presence, which is defined as “the ability of participants to identify with the group or course of study, communicate purposefully in a trusting environment, and develop personal and affective relationships progressively by way of projecting their individual personalities” (Garrison, 2011, p.34). Garrison and Anderson (2003) justified the role of a social presence as critical, and as “an important antecedent to collaboration and critical discourse because it facilitates achieving cognitive objectives by instigating, sustaining, and supporting critical thinking in a community of learners” (p. 67). Social presence has three categories: interpersonal communication, open communication, and cohesive communicative responses (Garrison et al., 2000).

Focusing on social presence is an appropriate and important place to begin the study of online learning (Garrison & Arbaugh, 2007). A review of previous research found evidence of a relationship between social presence, satisfaction, and perceived learning (Garrison & Arbaugh, 2007; Garrison, Cleveland-Innes, & Fung, 2010; Richardson & Swan, 2003). In Swan and Shih’s (2005) mixed method study, they explored the effect of different levels of perceived social presence on students satisfaction. The participants in the study were enrolled in four different graduate courses. Questionnaire and interview were used to collect data. Findings indicated that students who perceived a high level of social presence believed that online discussions were more interactive and that they learned more than did students perceiving a low level of social presence. Also, students reporting a high level of social presence stated that they benefited from the multiple perspectives presented by their classmates which led them to perceive things from different angles.

Second, cognitive presence is the core of a community of inquiry. It is defined as “the extent to which learners are able to construct and confirm meaning through sustained reflection

and discourse in a critical community of inquiry” (Garrison et al., 2001, p. 11). It refers to the processes that enable learners to build and apply knowledge through a collaborative and constructivist approach to learning. Garrison et al. (2001) operationalized cognitive presence in terms of a practical inquiry model resulting in a four-phase process: triggering event, exploration, integration, and resolution.

Third, teaching presence is defined as “the design, facilitation, and direction of cognitive and social process of the purpose of realizing personally meaningful and educationally worthwhile learning outcomes” (Garrison et al., 2001, p.5). Teaching presence plays a critical role in online learning through designing experiences that facilitate reflection and discourse and maintain a dynamic learning environment (Garrison, 2011). Teaching presence has three categories: instructional design and organization, facilitating discourse, and direct instruction (Garrison et al., 2001).

The importance of teaching presence is creating and providing a learning environment conducive to collaboration and reflection. Developing an ideal online learning environment requires planning, organization, and management skills. Collaborative learning does not happen automatically. It must be planned for and maintained with a conscious, continued effort (Weinberger, Kollar, Dimitriadis, Makitalo-Siegl, & Fischer, 2009). It is essential to have a strong teaching presence in an online learning environment in order to establish a climate for collaborative learning (Garrison, 2006). Shea, Li, and Pickett (2006) explained that “a strong and active presence on the part of the instructor – one in which she or he actively guides and orchestrates the discourse – is related both to students' sense of connectedness and learning” (p.185). Interaction and discourse play key roles in higher-order learning, and that requires structure (design) and leadership (facilitation and direction) (Garrison & Arbaugh, 2007).

According to Baran and Correia (2009), instructors should consistently participate in online discussion sharing their perspectives, advice, and resources. In a mixed method study by Mazzolini and Maddison (2005), the effect of online instructor participation on student participation and perception was investigated. Data were collected from surveys and online discussion forums over six semesters. One of the findings indicated that most students appreciated frequent postings by instructors, specifically when instructors seeded discussion with initial and follow-up questions. According to Garrison (2006), students must feel they are contributing members and are gaining accomplishment. It must be noted that all participants must play a role in teaching presences, and that it is not just the educators' responsibility (Redmond & Lock, 2006).

In a study of the causal relationships between social presence, teaching presence, and cognitive presence, Garrison et al. (2010) emphasized that teaching presence plays a large role in influencing students' perceptions of social and cognitive presence. "Perceptions of social presence also significantly predict perceptions of cognitive presence. Therefore, social presence must be seen as a mediating variable between teaching and cognitive presence (Garrison et al., 2010).

The elements of the Community of Inquiry (social presence, teaching presence, and cognitive presence) have been linked to overall student satisfaction in online learning (Akyol & Garrison, 2008; Garrison & Arbaugh, 2007; Richardson & Swan, 2003; Shea, Pickett, & Pelz, 2003; Swan & Shih, 2005). In a mixed method study by Akyol and Garrison (2008), they examined the effect of each presence on perceived learning and satisfaction. The study involved 16 graduate students. Quantitative (i.e., survey) and qualitative (i.e., discussion board transcript) data were gathered. The result showed that cognitive presence and teaching presence were

important factors in influencing student learning and satisfaction. In contrast, they found that social presence had no effect on learning but was associated with students' satisfaction. In another study, Morris (2011) explored student perceptions of online learning within the theoretical construct of the Community of Inquiry framework. Questionnaire, interviews, and learning artifacts were used to collect data. The study involved 25 participants. The results showed that most of the students (80%) were satisfied with their online learning experience, and indicated that communication and collaboration increased their satisfaction with the course. In terms of teaching presence, instructor involvement and support was judged as being the most helpful in the course by 64% of the participants.

**Student satisfaction with online collaborative learning.** Student satisfaction is an important affective factor in the learning experience. It relates to perceptions, attitudes, or feelings about education “as a process of end-product” (Sorden, 2011). If students feel that they have learned the material, have a deep understanding of it, and that their learning experiences were positive, then they have a strong sense of satisfaction (Sorden, 2011). Students' satisfaction in online learning is used as a criterion to control the quality of online courses (Allen, Bourhis, Burrell, & Mabry, 2002).

Student satisfaction is also important to the educational institutions because it had been shown to be a contributing factor in student retention (Liu, Gomez, & Yen, 2009). Levy (2007) studied over 400 undergraduate and graduate online students' attitudes towards e-learning, and found that student satisfaction was a key factor to successful online course completion. Non-completers had significantly lower satisfaction than students who successfully completed the same online course. Additionally, satisfaction is an affective construct that was considered to be a predictor of learning outcomes (LaPoint & Gunawardena, 2004). Student satisfaction is an



important factor in the motivation to achieve and complete a course, project, or process of learning. Creating an environment that continues to motivate without satisfaction would be difficult (Sorden, 2011). However, previous research (Kitchen & McDougal, 1998) has shown that there did not appear to be any correlation between student satisfaction and student background characteristics such as age, gender, grade level, and computer expertise.

In reviewing previous research, which focused on student satisfaction with online collaborative learning, Jung, Choi, Lim, and Leem (2002) found that students who reported a high level of collaboration with others in a course also expressed a higher level of satisfaction than those who engaged solely in task-oriented interaction with the instructor. Nummenmaa and Nummenmaa (2008) further supported the idea that students who actively participated in collaborative activities had more positive emotional experiences during the courses.

In contrast, some researchers obtained different results in their studies of satisfaction with online collaborative learning. Keengwe and Adjei-Boateng (2012) conducted a mixed method study to examine undergraduate students' and instructors' attitudes toward online collaborative learning. Data were collected from student surveys and instructor interviews. They found that most of the students had strong negative attitudes toward online collaborative projects. They identified that communication issues among group members were a big challenge facing students in online learning. Students reported: having problems communicating with some of their group members who did not respond to their emails; having a hard time working with teammates whom they considered to be "strangers"; and having difficulties in finding time to discuss their project together when everyone had different schedules. Moreover, as indicated earlier, Capdeferro and Romero (2012) studied the phenomenon of frustration among students involved in online collaborative learning, with the sources of frustration being identified by the students themselves.

Frustration is defined as “a negative emotion aroused upon encountering an obstacle in the achievement of a task, goal, or expectation, or in satisfying one’s needs” (Capdeferro & Romero, 2012, p.27). The identified factors that caused students’ frustration in online collaborative learning included: poor work ethic, unshared goals among the teammates of the group, communication difficulties, unequal quality of individual contributions, lack of negotiation skills and of instructor support.

Through reviewing the literature on students’ satisfaction with online collaborative learning, inconsistent results have been found. This discrepancy could be the result of two potential causes. First, that “satisfaction” is a subjective word; meaning every person has his or her own standard for rating it. Second, instructional design and instructor facilitation have a major affect on student satisfaction with online collaborative learning.

**Students experience with collaborative learning in online courses.** Understanding students’ perspectives toward their learning experience is important, because “psychological research has demonstrated that students’ learning outcomes are influenced by what they believe about their learning and how they approach it” (Chan & Chan, 2011, p.1). Students’ perspectives on their collaboration experience assists in identifying factors that support them. It also helps determine what structures or methods should be considered for enhancing the future experience. In my review of the literature on student perspectives toward online collaborative learning shows that little research been conducted in the area (Biasutti, 2011; Dewiyanti et al., 2007).

Biasutti (2011) studied students’ perceptions of online collaborative learning and the factors that affected their online performance. The study involved 92 participants who had enrolled in an online music education program. A self-evaluation questionnaire was used for

assessing the student satisfaction of the course. The questionnaire included two categories of questions: a quantitative evaluation of specific course aspects such as process, activities, teaching material, tutor performance, and dedicated competence, while a qualitative evaluation invited overall comments such as which aspect of the collaboration was most important and which should be improved. The findings showed that students appreciated the benefits of collaboration, such as developing teamwork skills and the cognitive process through analyzing and integrating different points of view. They also reported that the most important aspect of collaboration included the theme of teamwork such as improving communication and social skills during group work. The other aspect considered useful was operational, where students expressed the advantages of using Wikis in their collaborative learning. However, the students identified three aspects of collaboration that should be improved included: organizational issues (i.e. more coordination and organization, workload management, more relaxed work time), teamwork themes (more collaboration, cohesion, and discussion within the group), and teamwork ethics (participation, commitment, quality of contribution).

In Biasutti's (2011) research, the researcher depended on only one questionnaire at the end of the course to evaluate the students' perspective on their experience. The questionnaire did not reflect the process of collaboration and what was going on during the course. Therefore, interviewing participants could be an additional source of data with which to gain a deeper understanding of their experience with online collaborative learning. Students could therefore reflect upon their experience and provide more explanations about the collaboration process.

In another study, Dewiyanti et al. (2007) investigated students' experiences and satisfaction with collaborative learning from five online courses at the Open University of the

Netherlands. They explored students' experience with collaborative learning before, during and after the course by using three questionnaires. The first questionnaire, on individual characteristics to assess students' attitudes toward collaboration, was administered before the start of the course. The second questionnaire, on collaborative learning to assess the collaboration process, included six variables (monitoring group procedures, participation, monitoring group progress, helping each other, and giving feedback), was administered midway through the course. The third questionnaire on student satisfaction with collaborative learning included three variables: satisfaction with group member attitudes, satisfaction with learning in the group, and satisfaction with group working, was administered at the end of the course. The results indicated that students generally were positive toward their collaborative experiences during and after the course. The researchers found that students paid more attention in the second half of the course to the procedures they were required to follow for task completion than they had at the beginning of the course. The researchers justified that group member involvement in regulating the group process might take some time to happen, or it may be that the due date of the task was quickly approaching and the group had to become more efficient to accomplish the task. Another finding was that group cohesion played an important role on students' satisfaction. In contrast, group process regulation had a negative influence on student satisfaction. Lack of group process regulation may cause a group to experience loss of control in achieving their goal, thereby negatively affecting student satisfaction. The researchers also analyzed one group member discourse. Results for that discourse analysis indicated that the most discussed subject was the learning content, such as asking, arguing, explaining, and providing extra resources, rather than regulative activities such as planning, monitoring, and reflecting. Overall, students had a positive experience with online collaborative learning.

The research of both Biasutti (2011) and Dewiyanti et al. (2007) was mainly quantitative, where they used questionnaires to examine student experiences with online collaborative learning. As a result, the studies did not provide a deeper understanding of the collaborative experiences and how it had been implemented. What were the responsibilities of online instructors and students in their online courses? What were the instructors and facilitators roles during the collaborative learning process? Did instructors encourage and motivate students to collaborate actively? What were methods and scaffoldings used?

### **Summary**

Implementing collaborative learning in online courses has major advantages such as reducing the feelings of isolation, helping students gain deeper learning, and thus increasing students' satisfaction. Several factors must be considered in online collaborative learning. First, learners must be taught how to collaborate with each other. Second, clear guidelines and expectations must be provided in the beginning of the online course. Third, instructors should facilitate the learning process while students have the authority of their own learning. Fourth, evaluation collaborative tasks should respect individual contribution. Moreover, assessment should be collaborative (self-evaluation, group evaluation, and instructor evaluation).

### **Gaps in the Research Literature**

After examining the literature on online collaborative learning at the post-secondary level, several gaps have been identified. First, from my review of the literature, there is little research on the perspectives of online instructors and students regarding online collaborative learning. Questions that require further examination are: How do students and instructors reflect

upon their collaborative learning experience in online learning environments? What are instructors' and students' perceptions of a meaningful collaborative learning? What do students need from their instructors to participate actively in the learning process? Second, previous research has focused largely on the product of the collaboration process and students' satisfaction with it, with limited attention being paid to its process. The following questions therefore require further exploration: How collaborative learning is implemented in online environment? How do instructors successfully guide and facilitate online collaborative learning? What mechanisms are or can be in place to encourage and support student collaboration in online course environments? What kind of structure and scaffold do students need to support their collaboration within an online environment?

Given the questions that emerged from the review of literature, I designed my study to examine instructors' and students' experiences with online collaborative learning. The collaborative learning process was assessed through participants' perspectives in terms of what factors successfully supported collaboration, what factors had a negative impact on collaboration, and what recommendations and suggestions could be made to improve future experiences.

## **CHAPTER THREE: RESEARCH DESIGN**

### **Introduction**

My study investigated instructors' and students' experiences with collaborative learning in graduate online courses. The goal of the research was to develop a deeper understanding of the dynamics and development of online collaborative learning at the graduate course level. By understanding instructors' and students' perspectives and experiences, instructional designers and online instructors can create appropriate collaborative learning experiences, as well as, improve the quality of the learning process. A multi-case study approach enabled me, as the researcher, to gain a deeper understanding of the online collaborative learning participants' perceptions and experiences of two online graduate courses.

In this chapter, I described the research design of the study: research methodology, data collection, data analysis, boundaries of the study and ethical considerations.

### **Research Design Rationale**

A case study approach was selected because of the exploratory nature of the research. Case study research is “an in depth description and analysis of a bounded system” (Merriam, 2009, p.43). Creswell (2007) defined a qualitative research case study as

“A qualitative approach in which the investigator explores a bounded system (a case) or multiple bounded systems (cases) over time, through detailed, in depth data collection involving multiple sources of information (e.g., observations, interviews, audiovisual

material, and documents and reports) and report a case description and case-based themes” (p.73).

Yin (2009) defined case study as “an imperial inquiry that investigates contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (p.18). In addition, Miles and Huberman (1994) asserted, that a case study is “a phenomenon of some sort occurring in a bounded context” (p.25). They also presented a case graphically—as a circle with a heart in the center as the focus of the study. The circle “defines the edge of the case: what will not be studied” (p.25).

The objective of the case study approach in my research was to develop an in-depth analysis of the collaboration process in two online graduate courses. I analyzed the collaborative learning process from the beginning to completion including design, structures, implementation, facilitation, and guidance. Also, the collaboration was assessed through instructors’ and students’ perspectives in term of what factors successfully supported collaboration, and what factors had negative impact on supporting collaboration. The rationale for using a case study design was to gain a deeper understanding of the online collaborative learning development. The nature of the research problem and questions helped guide the chosen methodology most appropriate for an in-depth analysis of the collaboration over time. In addition, the case study approach accommodated the multiple data sources, which were used to gain a deeper understanding of the online collaborative learning experiences.

According to Yin (2003), cases studies “are the preferred strategy when ‘how’ or ‘why’ questions are posed, when the investigator has little control over events, and when the focus is on



a contemporary phenomenon with some real-life context” (p. 1). In my study, the focus was on how collaborative learning was implemented in online graduate courses. The case was designed to allow the researcher to explore the following research questions:

- What are the essential conditions required to support student collaboration in a higher education online learning course?
- How do the course design and the nature of the assignments influence the degree to which students participate in collaborative learning?
- What structures and scaffolds need to be in place to support student collaboration in online course environments?

According to Merriam (2009), qualitative case study research can be characterized as particularistic, descriptive, and heuristic. The particularistic nature of my study focused on the collaborative learning design, process, and outcomes within two online graduate courses. In Chapters Four and Five, I provided a comprehensive description of the collaborative design, process and outcomes that occurred in the two online courses, in addition to what similarities and/or differences existed between both case groups. The heuristic nature of the study was designed to heighten a reader’s understanding of the online collaborative learning, extend his/her understanding, and confirm what is known and not known.

A multiple case study approach (e.g., each course as a separate case study) was used. This type of approach enabled me to explore similarities and differences in and between the two case groups. I purposely selected a multiple case design to show different perspectives and experiences of online collaborative learning. Creswell (2007) recommended that no more than

four cases be studied since any more than that may dilute the overall analysis and lead to less in-depth findings. For these reasons, two cases were used in the study. Two factors led to this decision:

- **Time Limitation:** Both cases were studied for a period of one semester (13 weeks) with the purpose of gaining an in-depth understanding of the collaboration process. Various types of data were collected from students and instructors. Interacting with participants required a substantial amount of time.
- **Expedience:** My goal as a researcher was to have all data collected by April, 2013 for the timely completion of the Master's research.

### **Case Selection**

For this multiple-case study, I chose to study two online graduate courses that employed collaborative learning. The most common sampling procedure in case study research is purposeful sampling “based on the assumption that the investigator wants to discover, understand and gain insight and therefore must select a sample from which the most can be learned” (Merriam, 2009, p.77). As such, the goal of using the purposeful sampling was to assist me in learning more about the research problem that was focused on the collaborative learning process in online environments. Therefore, the selection of courses was dependent on three criteria: 1) each course was offered by a graduate program in a Faculty of Education at a Canadian University; 2) each course was part of a four course graduate certificate program that was offered online; 3) each course implemented collaborative learning as the main learning strategy. However, each course was different in instructional design, educational purpose, and number of enrolled students.

## **Selection of the Online Courses**

**The first online course.** The first graduate course was one of four courses within a particular graduate certificate program. Students who enrolled in the course were members of the certificate cohort. However, other graduate students from outside of the cohort were enrolled in the course. Given this was the third of four courses, all of the cohort students had experience with online learning. However, some students who only enrolled in this course may not have had the same extensive experience with online learning as the cohort group. The students had various background work experiences such as K-12 teaching, higher education, workplace and adult education. The instructor had taught this particular course five times previously. As a result, he was very familiar with the online learning environment, strategies, and techniques to support student collaboration.

**The second online course.** The second graduate course was one of four courses within a particular graduate certificate program. Students who enrolled in the course were members of the certificate cohort, except for one student. Given this was the third of four courses, all of the cohort students had experience with online learning, except the student from outside of the cohort who did not have experience with online learning. The students had various background work experiences such as K-12 teaching, higher education, workplace and adult education.

## **Data Collection**

Generally, various sources or techniques for data collection could be employed for case studies since the approach is feasible, ethical, and contributes to the overall understanding of the phenomenon under investigation (Gay et. al., 2009). According to Yin (2009), a good study should use two or more data sources. However, more sources require more extensive efforts to collect and analyze data (Creswell, 2007). A main strength of data collection in case studies is

the ability to use several sources of evidence so to have triangulation to ensure validity. In this study, the aim of using multiple data sources was two fold: 1) to obtain a complete picture of the student and instructor experiences with online collaborative learning; and 2) to cross-check information (Gay et. al., 2009). In my study, the following four data sources were used: interviews, documentation, online discussion and online observations.

The first major data source was semi-structured interviews that included open-ended questions to produce additional questions during the interviews. This subsequently led to the acquisition of more data on particular points or issues. Additionally, this type of interview allowed me “to respond to the situation at hand, to the emerging worldview of the respondent, and to new ideas on the topic” (Merriam, 2009, p.90). The interview questions were designed to do the following: 1) explore each participant’s experience with online collaborative learning; 2) gain an understanding of their perspective on the collaborative process; and 3) provide an opportunity for them to offer suggestions to enhance future collaborative learning experiences.

The participants interviewed were the instructors and students of two online graduate courses. The interviews were conducted on three separated occasions throughout the course semester: at the beginning of the course (January), halfway through course (February-March), and at the end of the course (March-April). All interviews were audio-recorded and transcribed verbatim. Each interview was approximately thirty to forty minutes in length.

The two online instructors were interviewed on two separate occasions. The first interview occurred at the beginning of the course for the purpose of developing an understanding of the design, scaffolds, methods, and strategies to be used in their courses. The second interview occurred at the end of the course for the purpose of exploring the specifics of the collaboration process that was implemented. The second interview provided an opportunity for

instructors to reflect on the collaborative learning experience and to make recommendations for enhancing future collaborative learning experiences.

Students' interviews were conducted with individuals who provided consent to participate in the study. Students were interviewed halfway through the course (February-March) and asked to provide a description of their collaborative learning process (e.g., plans, decision-making, sharing their points of view). Further, they were asked to reflect on the collaborative process. Additionally, they were interviewed at the end of the course to provide their thoughts on the collaborative learning experience, and suggestions to enhance future experience.

The second source of data was documentation. Documents that were collected to be examined for the study included the course syllabus and online learning artifacts created by participants. This kind of document evidence provided background information on the design of the course, the assessment practices that were used, the collaboration process, the nature of the student learning in terms of product (e.g., blog, wiki) and the achievement of the learning outcomes.

The third source of data was online discussion that occurred both asynchronously (e.g. Blackboard™ online discussion, Wiki space, Google Doc, e-mails) and synchronously (e.g. Elluminate *Live!* sessions). The purpose of examining these data was to learn how students collaborated and interacted with each other and how the instructors facilitated student interaction and participation that support collaboration.

The fourth source of data was my online observations with regard to understanding the online collaborative learning process. By using observation as a source of data, I had the opportunity to record the process of collaboration as it occurred (Creswell, 2012) which means that I observed the instructors' and students' interaction and participation in a collaborative

learning process. To gather this information, I used an observational protocol to record observations for both the synchronous and asynchronous communication forums. The protocol included a descriptive section to record activities as they occurred and a reflective section to record notes about the process and activities. My descriptive and reflective field notes were gathered over the course of the semester for the purpose of monitoring the collaborative process.

### **Data Analysis**

In my research, I used two case studies to gain a deeper understanding of online collaborative learning experiences. The applied techniques for this analysis were conducted in two stages. The first stage was a “within case analysis” in which each case was studied comprehensively. The second stage occurred after each case study was completed and involved a “cross-case analysis”. According to Miles and Huberman (1994) cross-case analysis is important for two reasons: first, to enhance “generalizability”(p.172), and second, “ to deepen understanding and explanation” (p.73).

**Within case analysis.** In this study, constant comparative analysis was conducted on the interview transcripts and researcher observation notes throughout the study. According to Merriam (2009), constant comparative analysis is inductive and comparative and “has been widely used thorough qualitative research without building grounded theory” (p.175). I followed Merriam’s (2009) steps for coding data to construct themes. First, I read the first set of data (first interview transcript, first set of field notes), and wrote in the margins comments and thoughts about the data. Then, I started coding data that would be useful to answer the research questions. After that, similar or relevant codes were grouped together to form initial themes. Once an analysis of the first set of the data was complete, I moved to next set of data (second interview transcripts, second field notes) and analyzed them according to the previous process. During the

process of analyzing the second set of data, I considered the first list of codes and constructed themes to see whether it was representative of the second set or not. Furthermore, I made a separate list of codes for this second data set. Then, the two lists were compared to see how they could be merged into one master list of codes and themes derived from both sets of data. Once completed, these themes were analyzed for similarities or differences in the data. Themes were continually reviewed as they emerged in the study to meet Merriam's (2009) criteria that:

- Themes should be responsive to the purpose of the research.
- Themes should be exhaustive, and represent all important or relevant data in the study.
- Themes should be mutually exclusive. Meaning a particular unit of data should fit into only one theme. If it is not, more work is needed to refine themes.
- Themes should be sensitizing. The naming of the theme should be sensitive as possible to what is in the data.

Constructing themes was highly inductive. I looked at each piece of data and from them was able to derive and construct tentative themes. As I collected and analyzed more data, I began to check whether the themes derived from earlier data sets 'held up' as I analyzed the subsequent data. As I continued my analysis it was determined that some themes remained solid, while others did not. As the study neared completion, the process of constructing themes became more deductive, in which I looked for more evidence to support the final set of themes (Merriam, 2009).

I used tables and theme maps to help me organize data, arrange concepts and thoughts. I used a table for each case to organize data, in which I linked each themes and subthemes with evidence whether from interview transcript and/or my observation notes. Also, using thematic

maps enabled me to examine relationships between codes, themes, and between different levels of themes (e.g., main themes, sub themes). One example of thematic maps that used in the study is shown in Figure 1.

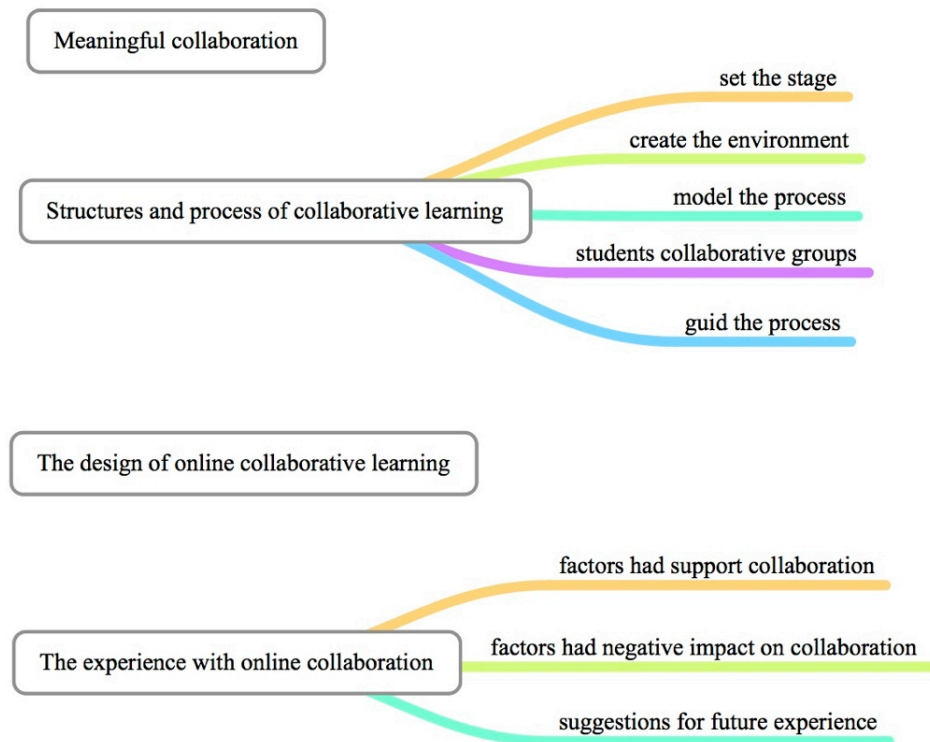


Figure 1. Thematic Map



The Curtis and Lawson's (2001) coding schema of content analysis for online collaborative learning behaviours was used to examine each case group's asynchronous discussion. The online discussion transcript was analyzed according to five major behavioural categories, as outlined by Johnson and Johnson (1996) were the following: planning, contributing, seeking input, reflecting/monitoring, and social interaction. Under each category were sub-categories (as shown in Table 3). The collaborative behaviour categories were used to examine the collaborative learning process. However, I considered any additional categories that might have emerged during the analysis.

Table 3

*Curtis and Lawson's (2001) Coding Schema to Describe Utterances in Online Collaboration.*

(Used with permission).

<b>Behaviour categories</b>	<b>Subcategories</b>
Planning	Group skills: a generic code applied to expressions that encourage group activity and cohesiveness.
	Organizing work: planning group work, setting shared tasks and deadlines.
	Initiating activities: setting up activities such as chat sessions to discuss the progress and organization of group work.
Contributing	Help giving: responding to questions and requests from others.
	Feedback giving: providing feedback on proposals from others.
	Exchanging resources and information to assist other group members.
	Sharing exciting knowledge and information with others
	Challenging others: challenging the contributions of other members and seeking to engage in debate.
	Explaining and elaborating: supporting one's own position (possibly following a challenge).
Seeking input	Help seeking: seeking assistance from others.
	Feedback seeking: seeking feedback on a position.
	Advocating effort: urging others to contribute to the group effort.
Reflection/ Monitoring	Monitoring group effort: comments about group's process and achievement.
	Reflecting on medium: comments about the effectiveness of the medium in supporting group activities.
Social Interaction	Social interaction: conversation about social matters that are unrelated to the group task.

**Cross-cases level analysis.** After the “within” case analysis was completed, the cross-case analysis took place. The main point for implementing cross-case analysis was to compare cases in terms of similarities or differences in order to find the replication (Yin, 2003). Using cross-case analysis provided me with a deeper understanding of the process and outcomes that occurred in both cases of online collaborative learning. Therefore, I was able to develop “more sophisticated descriptions and powerful explanations” (Miles & Huberman, 1994, p.172).

### **Integrity of Data in the Study**

As with all research, it is imperative to ensure valid, trustworthy, dependable and credible knowledge. The current qualitative research was designed to ensure validity and reliability. Merriam (2009) stated that, “validity and reliability are concerns that can be approached through careful attention to a study’s conceptualization and the way in which the data are collected, analyzed, and interpreted, and the way in which the findings are represented” (p.210).

**Internal validity.** Merriam (2009) described internal validity as the way in which “research findings match reality” (p.213). Internal validity is concerned with such questions as: Do the findings capture what has really happened? Are investigators measuring or observing what they think they are measuring?

According to Merriam (2009), triangulation, member checks, adequate engagement, and peer examination are the most common strategies for ensuring internal validity. Triangulation involves using “multiple methods, multiple sources of data, multiple investigators, or multiple theories to confirm emerging findings” (Merriam, 2009, p.215). In my study, the data were gathered through interviews, documents, online discussions, and observations. Data from these

sources provided information on designing the online collaborative courses, implementing collaboration process, participants' experiences with collaboration, and suggestions for future collaborative learning experiences. Interviewing both online instructors and students provided rich information from multiple perspectives with regard to the collaborative task design, collaborative process, challenges with collaboration, and future suggestions for collaborative learning.

The interview participants were invited to participate in member checking approach to increase the internal validity. After each interview was transcribed, each participant was given the opportunity to review his or her transcript to ensure its accuracy. In addition, after each case report was written, each participant in the study was given the opportunity to review his or her own case report. They were encouraged to provide their feedback and/or comments to ensure the accuracy of the research analysis.

Furthermore, long-term observations were conducted from the beginning to the end of the thirteen-week courses to understand the collaborative process by monitoring both synchronous and asynchronous communication forums. Also, peer examination was another strategy employed in the study. According to Merriam (2009), graduate students have peer examination "built into their thesis or dissertation committee, since each member of the committee reads and comments on the findings." I discussed and shared the research process, findings of the study, and my interpretations of the study with my supervisor.

**External validity.** External validity concerns the domain in which a study's findings can be applied to other situations (Merriam, 2009). There are several strategies that can be used to enhance the possibility of transferring the results from one qualitative study to another (Merriam, 2009). The following strategies were used in the study as outlined by Merriam (2009):

- **Rich thick description:** Referred to a detailed description of the setting and participants in the case, a detailed presentation of the collaborative process, and the findings of the study with adequate evidence presented in the form of quotes from participant interviews, online discussions and documents. The purpose of thick description was to help readers determine whether their situations match the context of the study, and whether the findings can be transferred or not.
- **Maximum variation:** Referred to the careful selection of the study sample. In this study, the sample was carefully selected based on whether online courses implemented collaborative learning as the main instructional approach.

**Reliability.** Reliability refers to the degree to which research findings can be replicated (Merriam, 2009). According to Yin (2009), "The goal of reliability is to minimize the errors and biases in a study" (p.45). Replication in qualitative research does not guarantee the same result, but this does not discredit the results of any research. Rather there can be numerous interpretations of the same data (Merriam, 2009). According to Merriam (2009), the key question for qualitative research is "whether the results are consistent with the data collected" (p.221). So, if the findings of a study are consistent with the data, the study can be considered reliable and "dependable" (Merriam, 2009).

Three techniques were used throughout my study as outlined by Merriam (2009) to ensure that the findings were consistent with the data collected:

- Triangulation: Achieved by using multiple methods of data collection as previously explained.
- Peer examination: Provided by my supervisor for regarding all aspects of the study (e.g. collecting, analyzing, and reporting the data).
- Audit trail: Provided by me, the researcher, as an explanation of how data were collected, themes were developed, and decisions were made during the study. This technique was used to authenticate the findings of the study (Merriam, 2009).

### **Boundaries of the Study**

The research design was created with the purpose of examining the online collaborative learning process from beginning to completion, from the design of the course to the submission of the final project. The use of case study research methodology allowed me to investigate in-depth two online graduate courses that used collaborative learning to achieve the learning tasks. The aim of using a multiple case study was “to see process and outcomes across many cases, to understand how they are qualified local conditions, and thus to develop more sophisticated descriptions and more powerful exploitations” (Miles & Huberman, 1994, p. 172).

**Delimitation of the study.** First, this multiple case study was delimited to two online graduate courses offered by the Graduate programs in Education in the Faculty of Education at the University of Calgary. Second, the courses implemented collaborative learning as the main approach in their instructional design. Third, the study was delimited to information voluntarily

shared by online instructors and students enrolled in the two courses. Fourth, the data were collected from January 2013 to April 2013.

**Limitations of the study.** There were four limitations in the study. First, as a qualitative study, the aim of the study was to gain an in-depth understanding of the students' and instructors' experiences with online collaborative learning rather than generalizing the findings to all online courses. The findings of the study reflected only the specifics of each case group. Thick description in the study helps readers to determine whether the findings can be transferred to their settings or not. Second, it was necessary to consider the limited number of interview participants in the study. For example, two students of twenty-three students, who were enrolled in the first course, voluntarily participated in the interview. Third, observations were limited to those students who gave their permission to be observed. For example, in the first case I just observed the interaction and collaborative process of four students' who provided consent. Fourth, it should be considered that I have limited experience with online courses which might affect how I observed and interpreted the design and process of the learning.

### **Reflections of the Research Design**

Based on this research, several key factors were identified as having been successful for data collection and analysis. First, the use of a case study approach in which multiple sources of data were used assisted me to gain a deeper understanding of the online collaborative learning process from the design, scaffolds, facilitation and recommendation for future collaborative learning experiences. Interviewing both instructors and students provided rich information from multiple perspectives about the online collaborative learning experience. Second, the use of two case groups enabled me to identify similarities and differences in and between each group. As a result, I was able to find the similarities, as well as, note the specific differences and why. Third,

with the use of constant comparative analysis themes emerged from the data itself and represented a holistic view of the participants' experiences with online collaborative learning from both cases.

I encountered some challenges with my research. The major issue was the difficulty in getting people to consent to participate in the study. Most online students had full time jobs. Therefore, it was an added challenge for them to have another commitment in their list of responsibilities, as mentioned by some students who apologized for not participating in the study.

### **Ethical Considerations**

The study met the University of Calgary's ethics review standard and the researcher received Ethics clearance from the University of Calgary Conjoint Faculties Research Ethics Board (CFREB). All participants were informed of their involvement in the study. The participants were asked to sign consent forms before data collection began. Their participation in the study was voluntary and they were informed of their right to withdraw from the study at any time.

Member checks were conducted to provide an opportunity for participants to review their interview transcripts. Moreover, the case study reports were sent to the participants to examine the interpretations and provide comments and clarifications. Participants had the right to discontinue their involvement in checking data.



## **Summary**

The study aimed to explore online instructors' and students' experiences as related to the collaborative processes in which the students were engaged in completing assignments for two graduate courses. The study examined online collaborative learning experience as it related to the design, process, product and outcomes. A multiple-case study approach was used to gain a deeper understanding of the collaborative learning process. Several key elements to this study helped to provide insight into the participants' experiences and understandings of collaborative learning process included the following: semi-structured interviews with students and instructors, documentation, synchronous and asynchronous online communication, and online observations.

## CHAPTER FOUR: RESEARCH FINDINGS FOR CASE ONE

### Course Design and Description

The first online case study involved twenty-three students enrolled in an online Master's level course, with most having had prior teaching experiences. The course was delivered online over a thirteen-week period during the Winter 2013 semester. Asynchronous and synchronous communication formats were used. A wiki space was used along with Blackboard™ course shell. Four Elluminate *Live!* sessions were conducted during the semester. Four students consented to participate in the study, which included permission to use their synchronous and asynchronous discussion data. Two of them agreed to participate in two interviews during the semester. The first interview was held during the second and third weeks of the course, and the second interview during the last week. In addition to student participation, the instructor of the course also participated in the study.

The students' grade was based on three learning tasks. First, each student was required to select an article to critique, and then had a fellow student provide feedback in the form of a peer review. A blog was used to accomplish this peer feedback task. Second, a small group of students were required to moderate a weekly online discussion through posting discussion questions, providing comments, insights, resources, and summarizing the discussion that captured key learning outcomes from the seminar. In addition to moderating the online discussion, each student had to participate and contribute regularly in each of the eight online weekly discussions. Third, each student was required to redesign a prototype project. There were three stages in the task: the first occurred in the middle of February when students were required to post their proposal in their blog to receive feedback from the instructor and/or fellow students; the second stage occurred between March 20<sup>th</sup> and April 10<sup>th</sup> when students were required to post

their learning artifacts and presentations on Blackboard™ in order to receive feedback before final submission, and the last stage was on April 10<sup>th</sup> when students submitted their learning task electronically to the instructor.

## **Findings**

Data in this study were gathered from interviews conducted with the online instructor and two students. Additional data was gathered from the Blackboard™ asynchronous discussion boards, synchronous Elluminate *Live!* sessions, instructor's emails sent to all students, one collaborative groups' email messages, and the course materials (e.g., course syllables, and wiki pages). From the analysis of the data four major themes were identified: 1) meaningful collaboration; 2) structures and processes of collaborative learning; 3) the design of online collaborative learning, and 4) the experiences with online collaborative learning.

**Meaningful collaboration.** In the first interview, the instructor and the two students were asked to describe their perceptions of meaningful collaboration. Their descriptions included some common characteristics such as creating a safe and trusting environment, respect, the ability to challenge each other's perspectives, fair participation and contribution, and encouraging participation. The instructor gave the following definition of meaningful collaboration:

“Few things that I think are really keys to collaboration, are keeping, creating a safe and trusting environment and I think that doesn't happen over night. It doesn't happen automatically. It really helps when you've got to as a teacher listen quite a bit.”

According to the instructor, one of the responsibilities of online instructors is to listen to and understand students' needs and interests, then “design the online collaborative activity based on their needs not on your past or previous experience.” One of the ways the instructor

accomplished this was by using a pre-course survey to understand the students' professional backgrounds and interests. By conducting the survey, the instructor was able to facilitate introductions between students, connect students who have common interests and design the learning tasks based on their experiences to meet their needs.

Also, the two students agreed that meaningful collaboration required building trust and a respectful learning environment. One student noted, "I think you need to be able to feel comfortable in the environment and feel that you are a valued member of the group, and ... you're going to be respected when you participate, and that your ideas are valuable." Another student reported, "There needs to be an environment that supports collaboration and makes people feel comfortable and positive about the process. I think it needs to be made clear from the beginning that everybody's working together."

The ability to challenge each other's perspectives appeared to be a common factor for meaningful collaboration from both perspectives of the instructor and the students. One student believed that challenging each other's ideas contributed to the learning process more than "just thinking independently and coming up with things, and assuming that they're right the way that they are." However, according to the instructor, one of the major challenges of an online environment is that students often hesitate to challenge each other's perspectives. Even if they do, they do so in a very superficial way because they do not know each other very well. The instructor highlighted, "That's not really good for collaboration because if we really want true collaboration we have to agree to disagree. We have to be able to challenge each other's ideas."

An additional factor for meaningful collaboration was that each member in a group should participate in the learning process and contribute to knowledge building. One student mentioned, "Meaningful collaboration would be that you learn more than what you would just on

your own.” Thus, every member who was involved in collaborative learning should actively participate to have “a valuable learning experience.” The other student also stated, “Everyone needs to share, I think equally ... a fair split of the workload.”

Encouragement during the collaborative process had a positive effect on the students’ contributions. According to one student, students encouraged each other by “posting insightful things and bringing something valuable to the table, so that they’ve done some of the readings already, that they’ve done some of the work and they have something interesting to say.”

Therefore, people were encouraged to respond and provide feedback. Also, acknowledgement of everyone’s efforts and contributions was important during the collaborative process. One student mentioned that it was important to thank and appreciate other students’ contributions, “especially if somebody takes time to do something – thanking them for doing that helps a lot because we’re all busy. When the work is divided, just acknowledging that somebody’s done some extra work is important.”

**Structures and process of collaborative learning.** Based on the data collected, the process of collaborative learning began on the first day the course started and occurred in the following phases: setting the stage, creating the environment, modeling the process, students’ collaborative groups, and guiding the process.

***Set the stage.*** This phase included several activities such as providing clear expectations and guidelines, making students feel comfortable, and establishing social relationships. At the beginning of the course, the instructor provided a course outline, which clearly identified the expectations, requirements, and assessments. Also, the instructor set up a section in Blackboard™ for each learning task in which descriptions, guidelines and rubrics were provided along with examples. Additionally, during the first Elluminate *Live!* session the instructor

explained the course expectations and learning tasks. Students were then asked to discuss these in groups as to whether they required more clarifications, or if they had additional questions regarding the course outline. For this group discussion in Elluminate *Live!* the instructor created five rooms and assigned four to five students to each of the private discussion rooms for ten minutes. After that, in the main discussion forum in Elluminate *Live!*, the instructor discussed and answered each group's concerns and questions, and provided some guidelines. In addition, the instructor provided an informative outline of weekly duties such as pre-class activity, virtual class activity and post-class activity.

Throughout the interview, the instructor explained that providing clear expectations and guidelines is important because "often we ask people to collaborate but people really don't know what it means to collaborate." The students agreed with the instructor with one student saying, "There needs to be clear expectations from instructors," such as "collaboration needs to happen," to achieve the course outcomes. The other student remarked that students need to know "what they're expected to get out of this process and clearly defined assessment strategy."

Second, the instructor made students feel comfortable to build a safe and trusting environment. He explained how students were supported at the beginning of the course,

"I find that some people are comfortable and want to do immediate email messages with me. Whereas other people want to hear my voice and it may not be from Skype because they may not be that technically confident, so they want to phone me, and I think that's important because if I'm going to set up this environment of collaboration they have to know first that they can collaborate in trust with me."

According to the instructor, "one size does not fit all" when it comes to how one student may feel comfortable as compared to another.

Establishing a social relationship was another important factor in building a safe and trusting environment. An introduction activity helped the students and instructors get to know each other's background, work experience and interests. For this activity, the instructor set up a student home page section for students to use to introduce themselves. On their home page, they could post an image about themselves and write a brief description about their previous experiences and what their goals were for this course.

***Create the environment.*** In order for the collaborative activity to occur, students required a place (i.e. synchronous and/or asynchronous communication forum) to collaborate and interact with each other. The instructor set up a social space via an Elluminate *Live!* session on Blackboard™ that was available 24 hours a day, seven days a week where students could meet and collaborate with each other. The students appreciated this synchronous forum, with one student saying, “We talked on Elluminate because we thought that would be an easy way to quickly discuss and figure out what we wanted to do.” One student remarked, “that's cool that it can be open 24/7”, while another student suggested using this synchronous discussion to her group as the “easiest and quickest [way] to discuss our ideas on Elluminate. [Student name] group just did that on the weekend and it was easy!”

Student-instructor interaction was made possible by having a virtual office hour every Wednesday from 6-7p.m. in the Elluminate *Live!* session for individuals who required support or had questions. The instructor was available to address student concerns when and if needed. Additionally, the instructor provided a space for informal interaction called “Course Café & FAQ” on Blackboard™. In this forum, the students provided additional resources such as learning theories, teaching tools, educational conference links, and articles. They asked questions regarding the learning task and discussed their experiences.

In addition to providing the technological tools for collaboration, the instructor connected the students with experts in the field. For example, the instructor invited several experts to participate in weekly discussions. These guests offered the students resources, advice, and stories of their professional experiences.

***Model the process.*** In this phase, the instructor modeled the learning process and moderated the first weekly discussion. First, he posted the discussion questions on Blackboard™, then he moderated the discussion by providing additional resources (e.g., videos, articles, experts), asking more questions to encourage deeper understanding, and responding to student responses. His modeling helped students better understand the course expectations. According to the instructor, moderating the first online discussion provided an opportunity for students to observe the moderation of an online discussion, and therefore gave them a blueprint to follow or even use to create their own when they were responsible for facilitating the weekly discussion.

During the interviews both the instructor and students explained the importance of modeling collaborative behaviour. The instructor said the following:

“I think what’s really important for the instructor and faculty member is to model the type of behaviour they want their students to do, so if you want to create a collaborative environment you got to model what it’s going to be.”

One student appreciated the instructor’s modeling and said, “That was really helpful for us to be able to see what we needed to do. Instead of just telling us what to do, being able to see it in action.”

***Students’ collaborative groups.*** For the student moderation of the weekly discussion, the groups were formed based on students’ interest regardless of how many students were in each group. The instructor said, “You choose what you want; because if we have nine people doing



one week, don't worry about it we'll divide you up into three groups of three and each one of you can look at a different perspective of that.”

There were eight groups for the weekly online discussion task with seven groups of three students and one group of two. Students started moderating the weekly online discussions in the second week of the course and continued until the ninth week. Each group was expected to prepare the discussion questions for their week, moderate the discussion and then summarize the main points based on “the practical inquiry cycle”. This instructor explained this cycle as:

- Identifying key questions that were discussed during their week's discussion;
- Exploring opportunities and challenges that were found on their topic discussion;
- Integrating what had been learned during the week's discussion into the development of the final project or teaching practice; and
- Providing recommendations based on what lesson had been learned through dialogue.

The researcher had permission to analyze one group's collaborative process through their asynchronous communication such as email messages (all three members in this group provided their consent for access). The group used online emails, two Elluminate *Live!* sessions, and a Google document. According to one student, the plan for their group was for them to meet synchronously via Elluminate *Live!* “to come up with a plan” for their work. They divided the tasks between them as “one person sent out an email, one person posted the initial questions, and another person was going to do the summary of the readings for the week which people were going to discuss.” Then, the students in the group provided feedback on each other's contribution. All group members moderated the online discussion together. They then divided the summary component into equal parts between them, and provided feedback to one another.

Curtis and Lawson's (2001) coding scheme was used to analyze the collaborative group email messages. Curtis and Lawson (2001) identified the following online collaborative behaviour categories: planning, contributing, seeking input, reflecting, monitoring, and social interaction. Under each collaborative behaviour category were sub-categories (as shown in Table 3. in the previous chapter). The data derived from the analysis of the group's asynchronous discussion are summarized in Table 4. Planning and contributing appear to have been essential behaviours in the group.

Table 4  
*Analysis of Group1 Email Messages*

<b>Behaviour Categories</b>	<b>Codes</b>	<b>Code total</b>	<b>Code percent</b>	<b>Category percent</b>
Planning	GS	2	2.25%	42.70%
	OW	33	37.08%	
	IA	3	3.37%	
Contribution	HeG	2	2.25%	34.83%
	FBG	18	20.22%	
	RI	7	7.87%	
	SK	4	4.49%	
	Ch	0	0.00%	
	EX	0	0.00%	
Seeking Input	HeS	3	3.37%	12.36%
	FBS	8	8.99%	
	EF	0	0.00%	
Reflecting/Monitoring	ME	2	2.25%	4.49%
	RM	2	2.25%	
Social Interaction	SI	5	5.62%	5.62%
Total		89		100.00%

The results in Table 4 indicate the proportion of planning behaviours was the highest and was reflected by the number of instances of organizing work (OW). In this group's interactions, there were many times where they worked on organizing items such as planning the work,

updating their work process, and establishing timelines for their tasks. The following are examples of planning behaviours described in the student communications:

- “I see we're a group for next week's discussion moderation, so thought maybe we should check in and see how we want to approach the week in terms of proposed activities or discussion questions.”
- “I will send you an email either later tonight or tomorrow morning of what I am going to send out to the class, so you can check it out.”
- “I've prepared a DRAFT summary of the PSE thread, using the headings provided by [the instructor's name].”

The proportion of contribution behaviours appeared to be the second most important behaviour. Giving feedback was a prominent behaviour in the group interaction. The students in the group provided feedback on each other's contributions and on their work process. For example, one student provided feedback on the discussion questions that were made by another group member stating, “I think that the initial question sounds better with strengths or benefits rather than positives.”

One notable difference was the absence of both challenging each other's input and explaining or elaborating on contribution in this group interaction.

Seeking input behaviour in this group indicated that the students were more inclined to seek feedback from their peers rather than help. During the collaborative process, the students asked their fellow students to provide feedback on their ideas or contributions. For example one student said, “I was thinking we would have three threads: the first with the introduction, then two more - one for each practitioner group. What do you think?”

The students in this group reflected on the effectiveness of the social space (Elluminate

*Live!* session) that the instructor set up for student interaction. One student wrote the following to her partners, “That's cool that it can be open 24/7 ... I didn't know that and have always had to book the session in advance.” They also reflected on the process of their contributions and achievement as a group. For example one student wrote, “Thanks every one for a great job, it was fun collaborating with you!” Another wrote, “You have been great group members team.”

Social interaction in this group was limited. Most of the discussion was task oriented, although there had been some social interaction. The social discussion was mostly about work commitments. By sharing their work responsibilities, the students were able to organize tasks, meetings and timelines based on everyone’s availability.

In summary, planning and contributing appeared to be essential behaviours in the group—specifically, organizing work and providing feedback behaviours.

***Guide the process.*** According to the instructor, online teaching requires leadership skills in order to manage and guide students during online courses. He explained the following:

“Being an online teacher is more than being a facilitator. You need to be a leader and what I mean by that is you’re just not sitting back and letting things happen. You really are leading the group, and this is really important in an online course, because what happens is things can really go off direction quickly ... So for me as the leader it’s like being the captain of a ship I’ve got to bring people back, I’ve got to refocus people and keep people moving forward.”

During the course, the instructor’s role did not end at the modeling. He was also active in guiding the students’ collaborative process. For example, the instructor sent an email to each group at the beginning of their collaborative process and asked them if they required help in organizing or planning their online discussion. The students acknowledged the instructor’s effort

and his guidance. One student stated during the interview that, “The instructor just offering support, sending out emails to each group saying, ‘Are you okay? Do you have any questions? Here’s the stuff that people did other years,’ that’s really helpful.” The instructor provided examples from previous years for each learning task to help students understand the expectations of the assignment and what they needed to do to achieve the desired outcomes. The second student reported that, “He provided student’s past work and stuff they’ve done to sort of prompt us along and give us ideas as what they expect needs to be done from us, and what we can do to get this done”.

The instructor also sent additional emails to each group during the middle of their collaborative process when they posted their weekly discussion questions to acknowledge their work. For example, the instructor sent the following message to one group, “Wow, you folks have put a great deal of thought and time into preparing this week's online discussion!! Really looking forward to the conversation.” At the end of the week’s discussion, the instructor sent another email to each group thanking them for the thought and time they put into moderating the discussions. The instructor also provided some suggestions and guidelines for their week’s discussion summary. By receiving these encouraging emails that acknowledged their work, students felt they were supported throughout the collaborative process and that the instructor was aware of their progress. One student emphasized the importance of the instructor’s mentorship and guidance to deal with emerging issues such as unfair workload, unproductive students, and conflicting perspectives.

During the collaborative learning process, students went through different stages: forming, storming, norming, and performing. According to the instructor, students require more help and guidance during the storming stage because “There will be conflict. People haven’t

been there together, but I can be there to help them learn to mediate it.” Online students must feel like they are supported by the instructor’s presence. Accordingly, the instructor remarked, “I think the big thing that students need is to feel that they are supported is that I’ve been there.” One student acknowledged his presence as “just being available for people when they have questions. Not always telling them what to do, but just being there if they don’t know and making them feel like they’re in a comfortable environment where they can ask questions.”

In addition to sending emails to each group, the instructor also made course announcements at the beginning of each week to thank the group who moderated the previous week’s discussion, as well as, introducing the group who are to moderate the current week’s discussion. He also reminded the students about the current week’s tasks and the weekly discussion.

**The design of online collaborative learning.** According to the instructor, the course was designed based on the Community of Inquiry (CoI) framework (Garrison et al. 2000). One component of the CoI framework is teaching presence, which emphasizes teaching and sharing responsibilities between students and instructors. One of the teaching presence categories is instructional design and organization. During the interview the instructor explained that he designed the course with flexibility to ensure he meets the needs of each of the learners. According to him, online students have diverse backgrounds and work experiences so they do not necessarily have the same needs and/or interests, which may affect their willingness to collaborate with each other. For example, people from the corporate training environment may “feel very isolated and they feel that these courses are being slanted more for K - 12 teachers.” Consequently, the instructor conducted an assessment at the beginning of the course to understand the students’ interests and work experience. As noted by the instructor, “I’ve got an

idea of their background, what their needs are, what their interests are, so that even though I've got the framework I can tailor the experience for them.”

In addition, the instructor noted three factors should be considered in designing collaborative learning tasks. The first factor is relevance, so students “can really see what they are doing is connected.” Second is rigor so students feel like they are challenged, “like they are being pushed out of their comfort zone but ... done in a way that they are not falling flat on their face — that they are learning through others.” Third, is the idea of relationship; “that it happens in a community of inquiry” in which all learning tasks were achieved through the support of peers even the individual projects. For example, the first learning task was an article critique that required students to post their critiques publicly in their personal blogs. They then chose another student's critique to review and provide feedback in the form of a peer review. One student appreciated the peer review by saying, “That was another way that we've been able to learn from someone else.” Also, the final project was completed individually with the support of peers and the instructor. The students did, however, have an option to do it with a partner. There were three stages in the final project. The first stage required students to post their proposal on their personal blog to receive feedback from other students and the instructor. The instructor provided feedback on each student's proposal and referred students who had common interests to one another so they could share ideas and resources. For example, the instructor wrote for one student, “I notice that both [Names of two students] are involved with ... Even though they focus on Elementary Education – they might be able to provide you with some resources, ideas, and insights ...Go for it!” However, during this stage the students did not provide feedback on each other's proposal as was expected. During the second stage, students posted their learning artifacts in Blackboard™ for the purpose of receiving feedback from the instructor and from

peers. The instructor did provide feedback on each student's project. However, only eight students out of 23 provided constructive feedback on other people's work.

Furthermore, the instructor believed that students should not be forced to work in groups. Rather, he believed that they should have the authority to decide if they wanted to work individually or collaboratively. Since the instructor had extensive experience in teaching online graduate courses, he found that when he forced students to work in groups for final projects it worked well for some but "for the majority of them they said it compromised them," because "for some people they really wanted to do well. Other people may have had personal issues or something like that." Consequently, the best solution for that "is to flex it out more so that if people in the end want to work on projects together that's great, give them the option."

Finally, the instructor explained the structure and scaffolding that were used to design the learning tasks and ultimately support students in the online learning course,

"The article critique was not worth a tremendous amount of work, [being] fairly low risk so developing some confidence, and a little more responsibility taking over, moderating the discussion, putting the summary together and then going towards the higher risk the individual project."

As a result, students developed confidence and took more risks while receiving a lot of peer review and support from the instructor and peers without losing a lot of marks.

**The experiences with online collaborative learning.** During the second interview, two students and the instructor were asked to reflect on their experiences with this online course, in particular what factors had successfully supported their collaboration and what factors had negatively impacted collaboration. Moreover, they were asked to provide suggestions and recommendations to enhance the future experience with online collaborative learning.



Overall, the two students were satisfied within the online course. One student said, “I had an excellent experience with this course. This is the third course that I’ve taken with the online Masters, and compared to the previous two courses, this one I learned a lot more,” because the instructor invited experts from the field to participate in the weekly online discussions. The student explained how it “was very interesting to talk to people who are leading researchers in the field.” Also, there was a lot of formative feedback from the instructor and peers during the course, which helped him to “develop deep understanding.”

The other student was also satisfied with this course. She appreciated the weekly discussions in which different perspectives were presented by saying, “I learned more from the discussions about the readings than I would have just by reading all of those articles myself...it’s kind of interesting to see people have very different interpretations and applications” of the same readings. In addition, she appreciated the instructor and her fellow student moderators for creating applicable discussion questions that focused on “how are you going to apply this to your project? So that helped to give everybody a personal perspective” and at the same time “made us to think about each other’s jobs, and how the readings could be applied to all these different situations. It was interesting to broaden our perspectives, but also make it applicable to our own workplace.”

While students had an overall successful experience, the instructor reported that he did encounter some challenges at the beginning of the course. First, “it took two full weeks before we really knew who was in the course,” as the university policy in which students have two weeks from the beginning of a semester to add and/or withdraw a course. Second, there were some students who had a lack of online communication skills by not responding to email. To this, the instructor remarked, “I just really get frustrated at the grad level when people don’t

respond to emails.” Third, the course was composed of students who were enrolled in the certificate cohort and many of the other students were from outside of this particular certificate program. Moreover, some students had no experience with online learning, which the instructor noted, “somebody who was not familiar with Elluminate *Live!*, had never done an asynchronous course—I just don’t think that’s fair to an instructor.” The instructor did however express that, “once we got going I found that they were much more engaged than I expected.”

***Factors had successfully supported collaboration.*** During the second interview, the students and the instructor identified some factors that supported the online collaborative learning such as building a safe environment, having clear expectations and guidelines, modeling the process, forming groups based on students’ interests, and connecting students who had common interests.

First, building a safe environment successfully supported collaborative learning in this course. One student reported that the instructor “developed a strong sense of community,” and thus the students were comfortable discussing with each other. According to him, “I think when you feel comfortable talking with someone, you get more meaningful discussion; you’re not afraid to give some criticism to people.” Moreover, the other student explained how the instructor built a safe environment using various tactics. First, at the beginning of the course there was an introduction activity in which students were required to post their information on Blackboard™. According to her, this introduction activity helped students get to know each other and “find out what everybody’s background was because we do come from a lot of different professional backgrounds. It sort of made us all feel like part of the class right away”. Also, she acknowledged the instructor’s attitude during the first Elluminate *Live!* session saying he was “really positive and welcoming,” and that “he made it clear from the beginning that we’re all

working together; we're not individuals. It's good to collaborate and learn from each other, get and share resources."

Second, providing clear expectations and resources supported online students' collaboration. One student mentioned that the instructor provided clear expectations and a rubric for each learning task, which helped them to understand clearly what they had to do. Also, the participants appreciated the instructor's effort to provide resources and tools that would assist them. According to one participant, it "was really useful for us to have those open *Illuminate Live!* sessions set up so that we could talk on there instead of doing everything by email or trying to send messages back and forth." In addition, the instructor invited experts from the field to discuss with the students and share resources. Therefore, the students could "not only collaborate with each other, but collaborate with the experts outside." The instructor noted that, "I'm just a person all I can do is create experiences, environments, make really engaging learning environments for them. It's like leading a horse to water; I can't force them to drink, but I can provide the water."

Third, modeling the process was another identified factor that supported online collaboration. The students explained the significant role of the instructor's modeling in supporting their group collaboration. One student mentioned that, "it was useful when [the instructor's name] modeled for us how to moderate and summarize the discussion." This modeling ultimately helped the group "be able to know what to do. So instead of just starting and not knowing what to do, we had that as an example to look back on and know where to start."

Fourth, forming groups based on students' interests was another supportive factor. One participant said, "one of the things that really helped us was just having us sign up for topics that

we were interested in moderating and having the groups formed that way.” As a result, all group members had a common interest.

Moreover, the instructor connected students who had common interests with each other in order to share resources and help each other, particularly for the third learning task, which was completed individually. According to one participant, the instructor “was always kind of letting us know which of our classmates were working on similar topics or came from similar backgrounds.” As a result, this participant “checked those people’s ideas for their projects. That was useful to see that.” Furthermore, the other participant stated, “ I definitely did look at the articles they were reading for the first ones to see what type of stuff they were looking at.”

***Factors that had negative impact on collaboration.*** The participants were asked to identify factors that had a negative impact on their collaboration. They identified the following three factors: number of discussion posts, use of inappropriate technological tools for collaboration, and limited synchronous discussions.

The students reported that although the weekly online discussion contributed to their deep learning and understanding, it was overwhelming to read and summarize as required. One student mentioned that “it was really hard to figure out what was going on, who was responding to who sometimes.” This student also noted that “if you were off for a day or two, you’d come back on and there could be 50 messages so sometimes the discussion boards just got a little out of hand.”

The second student mentioned that, “it was good that people were posting so much because everyone was really enthusiastic.” However, “ the posting on the discussion board was fairly overwhelming. So in some ways when we were trying to summarize it as a group, I think that made it really challenging for us.” Moreover, this student talked about the challenge of not

having a deadline for summarizing the discussion. As a result, her group made their own deadline. Unfortunately, what transpired in her group was that, “everyone of my group members ended up having something happen that we couldn’t get it done as soon as we thought.” Therefore, she concluded “it was good to just sort of have that deadline in place so that we’d get motivated to do some stuff.”

In addition, the use of an inappropriate tool was identified as a second negative factor. The students were required to post their learning task’s proposal on their blog where the instructor and fellow students could provide feedback. For this task, no student provided feedback to his or her peers. However, when students posted their learning task artifact on the Blackboard™ discussion board, eight of twenty-three provided constructive feedback. The two students and instructor were asked during the second interview to explain why no student feedback was provided on proposals found on the blogs, but was provided by some students on artifacts in the discussion board. One student identified some potential reasons: First, “in this course the discussion board was really active from the start and the blogs sort of felt separated... I think that people just focused on that and they maybe didn’t go to the blogs as much.” Second, visiting every individual blog required students to “click on each link”, which required more time, contrastingly “it’s just so much easier to go into Blackboard™ where everything’s all in one spot instead of having to go to all the separate pages.” According to her, having one place to collaborate was much easier. The student did not indicate that the blog was an inappropriate tool for collaboration because in her other classes, as she mentioned, “when we didn’t have the discussion board but we had blogs, the blogs can work as well.” This person found having “two different places might make it hard.”

The instructor also had some comments about using blogs in the course. According to him from a mid-term survey, students disliked using blogs because they “want to work with interactive communication products like Google Doc.” He justified another potential reason as being the “very public” nature of a blog which may cause students to hesitate in providing constructive feedback on each other’s work in comparison to the discussion board which was a more secure, password protected location.

The third identified factor was the limited synchronous dissuasion. According to the instructor, “the negative impact on supporting students’ collaboration” was that there were “not enough synchronous sessions.” He noted that program policy “only allows a maximum of three synchronous sessions” throughout the semester. The instructor explained, “in order to keep students going you’ve got to have a balance of synchronous and asynchronous communication.” The instructor was asked during the interview how many synchronous discussions should be used. He answered that “with an undergrad we say there’s weekly synchronous sessions” and “for a grad course minimum every two weeks”. The instructor’s answer was based on his research with international academic institutions.

***Suggestions and recommendations for future experience.*** The participants in the study provided suggestions and recommendations for future online collaborative learning experiences. The two students provided some suggestions to enhance the online synchronous discussions. They suggested dividing the weekly discussions between small groups based on students’ background such as K-12, higher education, and workplace environment, especially for large courses. One student said, “I think if we broke the discussion group up into smaller groups it would be more manageable and perhaps more effective for everybody.” The other student seconded this by saying, “I would alter the discussion to make it more small group discussion

and then share it in the larger group or have the summaries be a combination of all the small groups together. So everyone could see what other people were discussing.”

One student and the instructor provided a suggestion based on the use of technological tools. The student remarked, “making the online communication tools easy to use and easy to access is important. In our course with having a discussion board and a blog, maybe just simplify that and have one area where the discussion takes place would help.” This student also recommended that online instructors provide open Elluminate *Live!* sessions to their students as it was used in this course because it makes it “easy for people to collaborate”

The instructor noted he would consider the use of technological tools for future online collaboration courses. “The first thing I have to do is use a more appropriate tool for collaboration ... that they feel much more comfortable with and is done in a more private way. The blog I think was much too public.” Additionally, the instructor noted he would add an assessment component to the collaborative process to motivate online students in the future. According to him, “there still needs to be assessment or they wouldn’t do the peer feedback.”

Instructor presence appeared to be an important factor in supporting online students. One student talked about the instructor presence in this course as being online and then suddenly not online. For this student, she would recommend online instructors to be more consistent in their online presence.

The instructor was asked during the second interview to describe his presence during the course. According to the instructor, his presence was “a real mix” and he did that “intentionally.” For example, in the first week of the course the instructor moderated the discussion. Thus, he responded to almost each student’s responses. The instructor was also present during the second week’s discussion. Then, the instructor “butted out of the next two weeks just to see what would

happen.” At that time, the instructor did a mid- term survey, and one of the findings indicated that as the instructor mentioned, “they really wanted my presence, not to control the discussion, but just to validate that I was listening to what they were doing.” Therefore, the instructor had more of a presence for the rest of the weekly discussions to meet the students’ needs.

Finally, the instructor recommended academic institutions that provide online courses have “a clear alignment between what’s happening at the program or the institutional level, the instructor level, and the student level”. This alignment is needed for successful programs. According to the instructor, students need to understand clearly “what some of the guidelines at a program level are around collaboration. It’s just not getting it in a handout, but they have a conversation with that” through the orientation session. Also, instructors and students should discuss the guidelines and their expectations of one another in order to succeed.

## **Summary**

This chapter presented the findings of the data from the first case study. Data were collected from multiple sources: interviews, asynchronous discussion boards, synchronous Elluminate *Live!* sessions, instructor’s emails sent to students, one collaborative group’s private asynchronous discussion (e.g., email messages, private group discussions), and the course materials (e.g., course syllables, wiki pages). From the analysis of the data four themes were identified: 1) meaningful collaboration; 2) structures and processes of collaborative learning; 3) the design of online collaborative learning; and 4) experiences with online collaborative learning. The triangulated data analysis demonstrated a holistic view of the students’ and instructor’s experiences with online collaborative learning.



### **Verification of the Case Report**

The online course case report was sent to all volunteers who participated in the study. They were asked to review the report and to provide comments and/or suggestions to ensure the accuracy of the information and descriptions that were used in the research analysis. However, I did not receive any response from the participants.

## CHAPTER FIVE: RESEARCH FINDINGS FOR CASE TWO

### Course Design and Description

The second case study involved ten students enrolled in an online Master's level course, with most having had prior teaching background in K-12, ESL programs, or adult learning. The course was delivered online over a thirteen-week period during the Winter 2013 semester. Asynchronous and synchronous online discussion forums were used. A wiki space was used along with the Blackboard™ course shell. Two Elluminate *Live!* sessions were conducted during the semester; the first session was to welcome students and review the course expectations and assignment, and the second session was optional and occurred after the middle of the course (week 8) to discuss the expectations and provide clarifications about the final project. Four students consented to participate in the study, which included permission to use their synchronous and asynchronous discussion data. Three of these students agreed to participate in two interviews during the semester. The first interview was held during the second and third weeks of the course, and the second during the last week of the course. However, one of the student participants was unable to conduct the second interview. In addition, the instructor of this course also participated in the study.

The students' grade was based on four learning tasks. First, each student was required to write a weekly reflection blog and respond to two other colleagues' blogs. Second, a small group of students were required to design an online seminar, facilitate the seminar discussion, and post a summary that synthesized the discussion and captured key learning outcomes from the seminar. Students had an option to do this task individually, if they wanted. Third, each student was required to post a minimum of one substantive response each week in the asynchronous seminar discussions and respond to other students' postings. Fourth, each student was required to design

an action plan that included detailed strategies and support for their own work environment. Students had an option to do this action plan individually or in pairs. These action plans were posted on the discussion board in Blackboard™ for the purpose of sharing the work with the other students and to receive their feedback.

## **Findings**

Data in this study were gathered from interviews conducted with the online instructor and three students. Additional data was gathered from the Blackboard™ asynchronous discussion boards, synchronous Elluminate *Live!* sessions, instructor's emails to all students, one collaborative group's private asynchronous discussion (e.g., email, private discussion board), and the course materials (e.g., course syllables, and wiki pages). From the analysis of the data, the following four themes were identified: 1) meaningful collaboration; 2) structures and processes of collaborative learning; 3) the design of online collaborative learning; and 4) experiences with online collaborative learning.

**Meaningful collaboration.** The instructor and the three student participants were asked during the first interview to describe their perceptions of meaningful collaboration. In their descriptions, they used such common characteristics as: self-motivation, willingness to collaborate and learn from each other, good communication, feedback, contribution from all members, access to resources, community of inquiry components (teaching, cognitive and social presences), and respect and trust among participants.

The instructor used three key factors to describe meaningful collaboration. First, having clear expectations in terms of how students can collaborate with each other, and what the expectations are of each learning task. Second, having good communication between members, which “can be within a group setting or the whole class so that there’s a good sense of

communication between all people and everyone feels like they're connected." Third, having motivation to collaborate with others since "they are not just there because of their grade that they might receive; but they are there because they want to be there, they want to be part of those assigned discussions or whatever the activity might be." In short, having clear expectations, good communication, and motivation are the main characteristics of meaningful collaboration based on the instructor's perception.

From the three students, they shared various views of meaningful collaboration. The first student mentioned that meaningful collaboration would involve such items as "actively reading each other's work, giving positive feedback relating to the ideas we've presented and suggesting other ways we might look at the information." The second student noted, "having all stakeholders contribute... having access that means we can both access the resources and documents. Having both of our voices heard so that one isn't dominating." The third student used the community of inquiry framework (Garrison et al., 2000) to describe meaningful collaboration. The CoI framework involved three elements: teaching presence, cognitive presence, and social presence, when these elements "intertwine you get educational experience."

Respect seemed to be a key element of meaningful collaboration for both the instructor and students. According to the instructor a "sense of professionalism and being kind to one another and respecting differences is extremely important." One student added that "being respectful of each other's posts. It's okay to agree to disagree, but doing it in a constructive way that is not diminishing of the person." Another student noted, "instructors have to build a respectful and trusting environment where students don't feel inhibited or criticized."

According to the participants, students encouraged each other during the collaborative process through responding to each other contributions. One student explained that when fellow

students did comment on her responses it “motivates me to think about what I’ve written and can make me feel great.” Additionally, a lack of peer responses encouraged her “to try harder to come up with something they care about or can relate better.”

**Structures and process of collaborative learning.** Based on the data collected, the process of collaborative learning began on the first day of the course which started through the following phases: setting the stage, creating the environment, modeling the process, students’ collaborative groups, and guiding the process.

***Set the stage.*** This phase included activities such as: providing clear expectations and guidelines, supporting students to feel comfortable, providing technical support, and establishing social relationships. First, the instructor provided clear expectations for the course through a wiki page. She prepared a separate page for each learning task to describe its objectives, processes, guidelines, criteria, and deadlines. She also provided the rubric for each task. In addition, there was an information section for the weekly outlines of work which included such items as the required learning list, and tasks for each week. Moreover, during the first *Illuminate Live!* session, the instructor discussed the course expectations and requirements with the students for each learning task.

During the interview, the instructor remarked that providing clear expectations helped students understand how they should collaborate with each other. The students acknowledged that receiving clear expectations at the beginning of the course was very helpful for their success. One student mentioned that students need “a clear outline of what the course expectations are; which include a specific description of what active collaboration means to the instructor so that learners understand what is expected of them.” Also, this student described how clear guidelines affected her participation in two different online courses,

“I notice that I am far more motivated and active in the one course where the instructor has set out clear expectations for active participation and where assessment is based on how active and in depth our consistent collaboration is. The second instructor participates in some dialogue on our discussion board but there weren’t clear guidelines set out for what he expected in terms of collaboration or contributions and I find it really difficult to motivate myself to participate in that particular course.”

Second, in addition to providing clear expectations and guidelines, the instructor helped students to feel comfortable in order to facilitate more engagement and participation in the learning process. According to the instructor, there was a new student who had no experience with online learning. Therefore, the instructor spent more time with the student to address her questions and concerns to make sure she felt comfortable and understood “how the learning space would operate and how it would work and kind of alleviate some of those first time fears that someone may have.” According to the instructor, this student felt more comfortable after the first *Elluminate Live!* session because “some of the questions that others had asked were very similar to hers so that really helped alleviate some stress.”

Third, the instructor provided technical support for the students. She created tutorial videos that explained the use of different technological tools such as how to navigate the course through Blackboard™ or a wiki page. According to the instructor, she supported students via email too, “I’ve been really open about if they have any questions at all to email me at any time and many have done so as they need on various things.”

Further, establishing social relationships was an important factor in building a trusting and safe environment. According to the instructor, “relationship formation is foundational whether it’s an online course or face to face, so how do you establish that safe and caring

environment for learning to occur where people can feel free to take risks and collaborate.”

Therefore, the instructor asked students before the course began to introduce themselves in the introduction discussion thread in Blackboard™. Students were encouraged to welcome each other by responding to each other’s introductions. The instructor and some students used visual introductions to present pictures of themselves. As well as, the instructor welcomed each student in the course.

In addition, the instructor asked students to introduce themselves during the first Elluminate *Live!* session and talk about their work experiences and goals for this course. The purpose of the first Elluminate *Live!* session was to provide an opportunity for students to get know each other and “have the opportunity to ask questions,” as the instructor mentioned.

***Create the environment.*** In order for a collaborative activity to occur, students need to have a place to interact and collaborate with each other (i.e. synchronous and/or asynchronous communication forums). The wiki space was used to deliver the course content and present the weekly topic seminars, while the Blackboard™ was used for the weekly discussion of course topics. According to the instructor, the purpose of using wikis was to have access to the course content and the students’ seminars after the course ended. A variety of technological tools were used in the course to engage students in the learning process which included polling tools, Google Docs, Voice thread, Prezi, and Voki.

The students appreciated the use of wikis and the various technological tools. One student said, “the Wiki really provides a lot because within the Wikis, embedded the assignments, the outcomes, the criteria, the assessments, how you’re going to be assessed, links to the blogs; makes it all housed in one place.” Another student stated, “the Wiki in this course definitely does

fulfill the cognitive presence of CoI.” A third student mentioned that “she [the instructor] set up the course really well in providing different mediums for us to engage in.”

In addition to the wiki, the instructor set up a private collaboration space for each group to use in Blackboard™. Within each group, students had access to: 1) private discussion forum; 2) file sharing; 3) virtual collaboration space (synchronous communication); and 4) easy access to email for members of the group. Only one group used this private group area. The students were asked during the interview why they did not use the private space and their response was that Google documents and email were used instead of the private page because of ease of access and their familiarity with that technology.

***Model the process.*** In this phase, the instructor modeled the process of learning through moderating the first four online weekly seminar discussions. The instructor presented the weekly topic seminars, which included an engaging activity, providing additional reading resources, summarizing the required readings, and moderating the discussion. Therefore, the students saw “how course seminar topics were set up and what rubric expectations looked like prior to completing and leading their own seminar week” as mentioned by the instructor. Additionally, the instructor modeled the response and replied to others in a respectful manner through appreciation students’ participation first, and then asking for more clarifications, if needed, as mentioned by one student during the interview. Another student remarked how online instructors could facilitate online learning for students through “modeling, and being accessible, answering questions through email, and asking open-ended-encouraging questions.”

***Students’ collaborative groups.*** For the student moderation of the weekly discussion, a variety of tactics were used to form groups. The instructor asked students to choose their first, second and third choices from the weekly topics’ list based on their interest and availability.



According to their selections, the instructor was able to form the groups. The instructor explained, “I tried very hard to get everyone their first or second choice ... most of them have their first choices. There is a couple who have a second choice.” Furthermore, the students had an option to choose between working with a particular partner or individually for this learning task. All the students chose to work collaboratively.

There were five groups in this learning task with two students per group. The students were expected to develop a seminar presentation designed in a debate format where key concepts and themes identified from various readings and resources based on their topic, and recommendations provided for additional media resources. In addition to the debate itself, each group was asked to create learning activities for their colleagues and discussion questions for the seminar debate. Each group was required to submit a proposal on their topic seminar for the instructor to provide feedback before the start of their seminar. They were then responsible for moderating the week’s discussion. At the end of the week, each group created a summary that synthesized the discussions and captured key learning outcomes.

The students began to present and moderate the weekly discussions in the fifth week of the course and lasted until the tenth week. During the interview, the three students were asked to describe their groups’ work process. The first student explained that they used phone calls generally to communicate with each other, some email messages to exchange resources, and Google documents to prepare their proposal for the week’s discussion. This group submitted the proposal to the instructor as required, before their seminar started. Then, they modified their work based on the instructor’s feedback. This student appreciated the instructor feedback by saying, “our instructor has given us detailed feedback on this assignment which was much appreciated and needed.”

The second student mentioned that they used email messages to collaborate with each other, and Google documents to prepare their proposal for the week's discussion. According to this student, the group plan was to "put our template up on a Google Doc. Then we elaborated on that template through Google Docs and then we each contributed what we could." Also, this group submitted their proposal to the instructor as required to provide formative feedback.

According to the third student, her group used email messages, Skype, text messages, and the private group page in Blackboard™. I was given permission from both students in this group to analyze their email messages and their private discussion board. Curtis and Lawson's (2001) coding scheme was used to analyze this collaborative group's asynchronous discussion. Curtis and Lawson's (2001) identified the following online collaborative behaviour categories: planning, contributing, seeking input, reflecting, monitoring, and social interaction. Under each collaborative behaviour category were sub-categories (as shown in Table 3 in Chapter 3). The data derived from the analysis of the group's asynchronous discussion are summarized in Table 4. Where it shows, contributing and planning are considered the essential behaviours in this group—specifically, exchanging resources, and organizing work behaviours.

Table 5

*Analysis of Asynchronous Discussion of Group 3*

Behaviour Categories	Codes	Code totals	Code percent	Category percent
Planning	GS	4	3.33%	35.83%
	OW	36	30.00%	
	IA	3	2.50%	
Contribution	HeG	4	3.33%	40.00%
	FBG	19	15.83%	
	RI	20	16.67%	
	SK	3	2.50%	
	Ch	1	0.83%	
	EX	1	0.83%	
Seeking Input	HeS	3	2.50%	11.67%
	FBS	11	9.17%	
	EF	0	0.00%	
Reflecting/Monitoring	ME	6	5.00%	5.83%
	RM	1	0.83%	
Social Interaction	SI	8	6.67%	6.67%
Total		120		100.00%

The results in Table 5 indicate the proportion of contribution behaviours was the highest and was reflected by the number of exchanging resources, information and ideas to assist group members (RI). In this group’s interactions there were many contributions ranging from exchanging resources, sharing their contributions, to negotiating their ideas and perspectives. Furthermore, the students in this group provided feedback on each other’s contributions. The following are a few examples of the contribution behaviours described in the students’ communications:

- “I am finding all this good stuff on ... website - they have a whole page on [the topic].”

- “I also came across a couple of videos. One is six minutes, and the other is a Ted talk ... which might add an interesting spin to the discussion.”
- “So far I've got the first task complete with this YouTube video to get them interested/curious but think we should start with an intro in the first slot.”
- “The articles you found were very interesting and appropriate.”
- “It's great, but it's more about ... and not necessarily focused on.... I say we stick to the ...article and the ... video, which is also fairly humorous.”

The proportion of planning behaviours appeared to be the second most important. In this group's interactions there were many times they worked on organizing items such as planning, updating their work process, and establishing timelines. The following are examples of the planning behaviours described in the students' communications:

- “Let's brainstorm and figure out what to, how to do it and when to collaborate. I'll start looking for articles and keep you posted on my progress. You can do the same”
- “I'll write up the article summaries tonight and tomorrow and send them to you as I complete.”
- “We can meet up on Saturday to discuss posting our seminar to the Wiki and work on our activities/tasks.”

Seeking input behaviour in this group indicated that the students were more inclined to gain feedback from their peer's rather than help. During the collaboration process, students asked each other to provide feedback on their ideas or contributions. For example one student wrote, “I've gone through questions 1 and 3 using [the instructor name] feedback. Please have a look and ensure you are okay with the changes.”

The students in this group sent comments to acknowledge their process and achievement with the work. For example, one student wrote to her partner, “Thanks again for putting everything in the proposal. You've streamlined it really well.”

Social interaction in this group was limited. Most of the discussion was task oriented, though there was some social interaction. The social discussion was mostly about each other's social and work commitments. By sharing these responsibilities, the students were able to understand and appreciate each other's different schedules and were better able to organize tasks, meetings and timelines based on their availability.

***Guide the process.*** According to the instructor, online instructors have to be “very open to a strong pedagogy with learning and realizing that you are the guide. You're not the person with keeper of all knowledge.” As such, instructors should facilitate learning and guide students in their quest to “uncover new learning content.” That might involve “being an additional thought provoker, so you're asking additional questions, getting them to pose and think deeper, stretching their thinking in regards to some of the context and the ways in which they were learning.”

In order to guide each group's collaborative process, the students were asked to submit a proposal (1-2 pages in length) for their respective seminar one week before it began in order for the instructor to provide formative feedback. The proposal included the learning activity for students to engage in such as videos, a survey, the debate questions, and additional academic readings. Based on the instructor's formative feedback, the students had a chance to enhance their work before they submitted the final copy and finished the assignment. The students in the study appreciated the instructor's feedback. One student said “she [the instructor] gave us very

constructive formative feedback and we were able to integrate her feedback to actually provide a much higher quality seminar for our classmates.”

In addition to providing formative feedback, the instructor sent an email to each group one or two weeks before their seminar began to check in and see if they had any questions, needed any help, or simply just to encourage them to be creative. The instructor also sent emails after the seminar to students to acknowledge their work. For example, the following message was sent to one group:

“I just wanted to express how excited I am to see that you've broken the mold and developed your own process for seminar delivery.... It looks great so far and I am looking forward to digging in further this week! Looks like you've created a very engaging seminar for us this week!”

In addition to sending individual group emails, the instructor sent out general emails to all students thanking them for their active participation during the weekly discussions, and letting them know if they need any help. She noted, “I am quick in responding via email, or we can set up a Skype meeting if requested too.”

**The design of online collaborative learning.** According to the instructor, several factors were considered in designing the course such as selecting relevant content, designing practical learning tasks, and creating a balance between individual and collaborative learning tasks. She said one of the main goals of this course was for students to be able to transfer what they learned to their work in a real life context. One student appreciated the design of the course, specifically the relevant content saying, “these mediums are currently used by students and I’m being taught how to learn about them, how to use them and eventually how to teach students to safely and ethically use them.” Also, the instructor designed practical learning tasks in which students

applied what they learned during the course to design an action plan as a final project.

Throughout the semester, students discussed a variety of topics related to the course materials, and negotiated different perspectives. Then, students applied what was learned during the semester to their final project. One student appreciated the design of the learning tasks because “this way of providing education is truly practical, relevant and it is genuinely an indication of my ability to analyze and collaborate with new ideas, perspectives and information.”

Since the course was designed around collaborative learning, creating a balance between individual and collaborative tasks was required as the instructor explained. Thus, both the group and individual assessments were used to see “the individual skills” improvement too.

In terms of designing the assessment, the instructor used both formative and summative assessments for individual and collaborative learning tasks. A formative assessment was provided for each student on both their weekly blogs and discussion contributions on two occasions at the beginning and in the middle of the course. The instructor also provided formative assessment for each group on their discussion proposal as explained previously. In addition, students were required to submit a proposal for their final project, whether they were working individually or collaboratively, to provide formative feedback.

In regards to the synchronous Elluminate *Live!* session, two students suggested having more sessions to discuss the course topics as a group, since there were only two sessions during the course. One student said, “In my last course we had optional synchronous sessions every couple of weeks and it was just an opportunity to touch base, and it was just interesting to hear what people were thinking and it helped to guide my thinking.” Furthermore, the other student remarked that synchronous discussions should be used as group discussion “regarding the readings” rather than “used for presentations.”

In term of the weekly workload, one student claimed that as a result of the heavy workload “people don’t have the time to put anything more than just minimal acceptance...they’re not really sending messages back to each other saying, ‘Thank you for the feedback’ You wonder if people are even reading your comments.” This student felt that “the collaboration online is not very in-depth; it’s very shallow.”

**The experiences with online collaborative learning.** During the second interview, two students and the instructor were asked to reflect on their experiences with this online course, in particular, what factors had successfully supported their collaboration and what factors had negatively impacted collaboration. Also, they were asked to provide suggestions and recommendations to enhance the future experiences with online collaborative learning.

Overall, the two students and the instructor had a good experience with the online course. One student referred to two factors, in particular, that positively affected her experience: 1) the instructor’s formative feedback, “the instructor has I think gone above and beyond the expectations for feedback”, and 2) the relevant course material saying, “It was really good to make connections between the course and my work.”

The second student remarked, “I found this particular course really enlightening” and mentioned two key factors that influenced her experience. First, the design of the course was practical and relevant allowing her to apply what had been learned throughout the semester to the final project in addition to her work environment. Second, the collaboration in the course was “more engaging”, such as the weekly blog in which each student wrote a reflective blog, and then responded to other colleagues’ blogs. According to her, this weekly blog “was incredible for collaborating new ideas and perspectives.”



The instructor also had a good experience in teaching this course, “I’d actually love to teach this course again. There’s a lot of work to put in before the course starts to just teach it once...but it’s been really rewarding; I’ve really loved it actually.”

The instructor was asked during the interview about her participation in the weekly discussions. She said that there was a “careful balance” in her participation. According to her, some instructors “are in there for every comment” while some of them “are completely absent from it”, but her participation was “in the middle of that.” Mainly, “I tend to sit back and see where the conversation is going and if they need redirection or if an additional question needs to be posed, I’ll kind of pop in a question there to get them to think deeper.” In contrast, one student during the interview claimed that an instructor’s participation in the weekly discussion was significant “even brief comments to what people are saying, even if it is a few people here and there makes a big difference.”

***Factors had successfully supported collaboration.*** During the second interview, two students and instructor identified the following key factors that supported online collaborative learning: 1) building a safe and trusting environment, 2) providing formative assessment, 3) using a variety of technological tools, 4) assessing students’ collaboration, 5) providing engaging activities, and 6) forming groups based on a topic of interest and availability.

First, building a safe and trusting environment in which students feel comfortable to collaborate was considered an important factor in supporting online collaboration. The instructor helped students feel comfortable at the beginning of the course by “individually reaching [out] to students through email to make sure they were doing okay with the course.” In addition, the instructor was available for any student who required additional help and “making people feel comfortable so that no question [was an] invalid question. It’s okay to ask questions and I prefer

that they do, so that any gray areas can be ironed out and so they feel successful.” According to the instructor, students were really open to send emails and ask questions. One student appreciated the instructor’s support in addressing their issues and/or concerns, saying that the instructor was “available all the time whenever we needed her, she was there on email, if we needed something else we always knew that she was a phone call away.” Moreover, the student went on to explain how the instructor prepared students to be respectful in their negotiation as “it was very clearly written to be respectful of each other and to keep an open mind.” Also, the instructor modeled the respectful behaviour that she was asking of students as “while she contributed, she was modeling that as well, just valuing what somebody said and then asking the questions if something wasn’t clear.”

Second, providing formative assessment was considered a major factor in supporting online collaboration. According to the instructor, providing formative feedback had “been good too for fostering a good collaborative environment” by giving students an opportunity to build their proposal together, and then submitted to the instructor to provide formative feedback, which ultimately afforded them the opportunity to enhance their work together. Moreover, creating the proposal helped students to plan and manage their work, as mentioned by one student. According to the students, the instructor provided constructive feedback that helped them create a higher quality product.

Third, a variety of technological tools supported online students to effectively collaborate. According to one student, “the technology has facilitated collaboration” by allowing students in different locations to work on the same document asynchronously through media such as Google Documents. The instructor reported that a variety of technological tools had been used to meet the students’ needs. For example, “if someone talked about how they missed the

face-to-face component then I would really draw attention to that ... so I use a VoiceThread so that there was a voice and there was a picture of themselves.”

Fourth, another identified factor was assessing students’ collaboration, which motivated students to interact and participate effectively. According to one student, “you had to collaborate in order to complete your learning task so it was in some ways forced.” Also, the other student agreed that assessing collaboration motivated them to collaborate. “We are expected to have two responses for each blog, two responses for each Blackboard™ response and that’s part of your mark so you have to participate.” Otherwise, “I think there would be people who would choose not to participate.” In addition to assessing collaboration, providing specific expectations of the collaboration requirements such as the weekly discussion contributions helped students to meet the desired outcomes. According to one student, “encouraging collaboration would mean making a specific standard for responses,” such as “how many responses you want from people and what you want them to respond to” as was scaffolded in this course.

Fifth, engaging activities motivated students to collaborate. According to the instructor, students were required “to come up with not just content to deliver to people, but ways in which they could engage their classmates through that learning content.” This was important to “make it a really open and collaborative environment.”

Sixth, the method of forming groups was another factor. One student appreciated the tactic of forming groups based on their interest and availability. According to her, “ I specifically chose a month that had a topic that I was interested in and I was able to do that without having it conflict with this assignment or life in general.”

***Factors had negative impact on collaboration.*** One of challenges that online students face is “how to collaborate and communicate at a distance and through technological media”

mentioned by the instructor. One student was new to online learning explained during the second interview her challenge by stating, “I didn’t know how to approach people, and I didn’t have their direct email addresses.” This student did not know that she had access to all her classmates’ email addresses in Blackboard™. As a result, she was forced to do the final project individually because she “wasn’t quite sure how to approach somebody to be a partner with” her in a private way using an email. In terms of the instructor’s support, a wiki page was created for students so they could ask for a partner, if they wanted. This particular student asked for a partner in the wiki at the beginning of the semester but she did not get a response, she said, “all year I waited to see if someone would respond to me.” This is an example of a student’s lack of awareness of Blackboard™ tools and how to use.

***Suggestions and recommendations for future experience.*** During the second interview, the two students provided suggestions and recommendations for future online collaborative learning experiences. The first student suggested having more Elluminate *Live!* sessions to build a strong learning community. According to her, these synchronous discussions did not affect the quality of learning but rather developed a sense of belonging. “Our human need to be a part of a group, a part of that community and a sense of who our peers are and where they’re coming from... so you have that sense of empathy for each other.” According to her, four Elluminate *Live!* sessions in a semester would “contribute to that sense of a learning community” for online students.

The second student recommended having clear expectations and specific requirements for online discussions and facilitating these discussions by posing targeted questions. She also recommended online instructors model their responses to help students clearly understand the expectations.

## **Summary**

This chapter presented the findings of the data from the second case study. Data were collected from multiple sources: students' interviews, the instructor interviews, asynchronous discussion boards, synchronous Elluminate *Live!* sessions, instructor's emails sent to students, one collaborative group's private asynchronous discussion (e.g., email messages, private group discussion board), and the course materials (e.g., course syllables, Wiki pages). From the analysis of the data four themes were identified: 1) meaningful collaboration; 2) structures and processes of collaborative learning; 3) the design of online collaborative learning; and 4) experiences with online collaborative learning. The triangulated data analysis demonstrated a holistic view of the students' and instructor's experience with online collaborative learning.

## **Verification of the Case Report**

The online course case report was sent to all people who volunteered to participate in the study. They were asked to review the report and to provide comments and/or suggestions to ensure the accuracy of the information and descriptions that were used in the research analysis. One of four participants responded that she read the report and also provided feedback. She wrote, "I think you've done an awesome job capturing the course experience and further areas for progress!"

## CHAPTER SIX: CROSS –CASE ANALYSIS AND DISCUSSION

In this chapter, I presented an analysis of cross-case studies of the cases that were presented individually in Chapters Four and Five. Following the analysis, I discussed in depth the major findings from the two case studies in addressing the following three research questions:

- What are the essential conditions required to support student collaboration in a higher education online learning course?
- How do the course design and the nature of the assignments influence the degree to which students participated in collaborative learning?
- What structures and scaffolds need to be in place to support student collaboration in an online course environment?

### **Cross Case Analysis**

In this section, I presented an analysis of the cross-case studies that were originally analyzed at an individual level in Chapters Four and Five. The main purpose underlying cross-case analysis was to compare the two cases while focusing on major findings in terms of similarities and differences to find direct replication or contrasts. In addition, the cross-case analysis enabled me to draw robust conclusions which helped to answer the research questions.

**Key Findings.** The cross-case analysis of the main findings was presented based on the following themes that were identified from the case analysis phase: 1) meaningful collaboration; 2) structures and processes of collaborative learning; 3) the design of online collaborative learning; and 4) experiences with online collaborative learning.

***Meaningful collaboration.*** In the first interview, the participants in both cases were asked to describe their perceptions of meaningful collaboration. Generally they used some

common characteristics in their descriptions such as creating a safe and trusting environment, fair participation and contribution from all members in a group, willingness to collaborate and learn from each other, respect and trust among and between participants. Overall, the participants in both cases had similar perceptions of meaningful collaboration.

***Structures and process of collaborative learning.*** In both cases, the process of collaborative learning began on the first day the courses started and proceeded in the following phases: setting the stage, creating the environment, modeling the process, students' group collaboration, and guiding the process.

*Set the stage.* Some activities had been used in both cases to prepare online students for collaborative learning. First, the instructors provided clear expectations, guidelines, and rubric for each learning task. In addition, the instructors discussed their course expectations and requirements during the first Elluminate *Live!* session. The participants in both cases highlighted how important the provision of clear expectations and guidelines was to their success. One participant mentioned that students needed "a clear outline of what the course expectations are; which include a specific description of what active collaboration means to the instructor so that learners understand what is expected of them." Second, the instructors helped students to feel comfortable in order to facilitate more engagement and participation in the learning process. Supporting students to feel comfortable was done through providing pedagogical, technical, intellectual, and social support. For example, the instructors clearly explained the course expectations and guidelines to ensure that students understood what they had to do. Also, the instructor in the second course created some tutorial videos that explained the use of different technological tools in order to help students use them effectively. Third, establishing social relationships was considered an important step in both cases to build a safe and trusting

environment. Therefore, the instructors in both cases asked students to introduce themselves asynchronously within the Blackboard™. Moreover, in the first case, the instructor provided a social space for students' informal interaction within the discussion board.

*Create the environment.* Providing a place (i.e., synchronous and/or asynchronous communication forum) for students' collaboration was an important step. In general, wiki space and Blackboard™ were used in both cases to deliver the course content, and to showcase the weekly discussion. For small group collaboration, the instructors in both cases provided tools for their students to collaborate with each other. For instance, the first case instructor set up a social space via an Elluminate *Live!* session on Blackboard™ that was available 24 hours a day, seven days a week for students to meet and collaborate with each other. Also, the second case instructor set up a private collaboration space for each group to use within the Blackboard™. With each group page section students had access to: private discussion forums, file-sharing tools, virtual collaboration space, and easy access to email partners.

*Model the process.* The instructors in both cases modeled the learning process and moderated the first weekly discussions. They posted discussion questions and then moderated the discussion by providing additional resources (e.g., videos, articles, experts), asking more questions to encourage deeper understanding, and responding to students' responses. Thus, students were able to see what the expectations were for the online discussion prior to leading their own discussion week. The participants appreciated their instructors' modeling. As one participant stated, "that was really helpful for us to be able to see what we needed to do instead of just telling us what to do- being able to see it in action."

*Students' collaborative groups.* Each case had its own requirements for the weekly discussion moderation. In the first case, each group was required to post discussion questions at



the beginning of their week's discussion, then moderate the discussion through providing additional resources, responding to student responses and asking deep questions. At the end of the discussion, each group was required to summarize their weekly discussion and post the summary in the wiki space. Based on the participants' descriptions during the interview, students mainly divided tasks between them and then they shared their work to provide feedback on each other's contributions.

In contrast, in the second case each group was required first to develop a seminar presentation that identified key concepts and themes based on their topic, second to create a learning activity for their colleagues, and finally to moderate the weekly discussion through posting initial discussion questions and responding to their classmates' responses. At the end of the week's discussion, each group was required to summarize it within two days of the end. Based on the participants' descriptions during the interview, students mainly worked together on the same tasks instead of dividing tasks among them.

*Guide the process.* Guiding students during collaborative learning process appeared to be an important method for online collaborative learning success. Both instructors believed that one of their responsibilities was to guide students during their collaboration process and each of them had their own way to guide their students' collaboration. The first case instructor contacted each group during their collaborative process via email on three occasions: before they started moderating the weekly discussion to provide resources and check whether they needed any additional help; in the middle of their collaboration process, specifically when they posted their weekly discussion questions to acknowledge their work; and at the end of the week's discussion in order to provide some suggestions and guidelines for their discussion summary. The students in the first case appreciated the instructor's effort in guiding and supporting their process through

providing examples and resources. For example, one participant said that “the instructor just offering support, sending out emails to each group saying, ‘are you okay? do you have any questions? here’s the stuff that people did other years,’ that’s really helpful.”

On the other hand, the instructor in the second case asked students to submit a proposal for their respective topic seminar before their seminar began in order to provide formative feedback. Based on the instructor’s formative feedback, the students had a chance to enhance their work before they submitted the final copy. The three students in the study appreciated the instructor’s feedback. For example, one student said “she [the instructor] gave us very constructive formative feedback and we were able to integrate her feedback to [actually] provide a much higher quality seminar for our classmates.” Also, the instructor emailed each group one or two weeks before the date of their seminar in case they had any questions, or needed any help.

***The design of online collaborative learning.*** Generally, two factors were involved in designing the two courses: selecting relevant content and designing practical and challenging learning tasks in which students were able to apply what had been learned during the semester to the final projects and then transfer their learning to their life context. The weekly discussions task was used by students in both courses to discuss topics related to reading materials, present different perspectives, negotiate their ideas, and exchange resources. At the end of the semester, the students were required to design a project based on their work experience area. The participants in both cases appreciated the design of relevant practical tasks. However, one of the notable differences between the two cases was that in the first case collaborative learning had been considered in the design of all learning tasks. Even the individual tasks were achieved through peer feedback along with the instructor’s feedback. While in the second case, there was a balance between individual and collaborative learning tasks as mentioned by the instructor.

Formative and summative assessments were used in both courses to assess students learning process and products.

In terms of using synchronous discussion, in the first case four Elluminate *Live!* sessions were conducted throughout the semester to discuss topics related to the course, while in the second case two Elluminate *Live!* sessions were conducted. The participants in the second case suggested that it would be helpful to have more synchronous discussions to help build a strong learning community. According to them, these synchronous discussions should be used for students' discussion purposes rather than presentation purposes. One student said, "In my last course we had optional synchronous sessions every couple of weeks and it was just an opportunity to touch base, and it was just interesting to hear what people were thinking and it helped to guide my thinking."

***The experiences with online collaborative learning.*** Generally, the participants in both cases had a good experience with the online courses. They referred to three factors that positively affected their experiences: receiving formative feedback on their learning process, using collaborative learning as the main approach, and designing practical and relevant tasks. Also, the participants in both cases identified common factors that supported their collaborative learning which included building a safe and trusting environment, forming groups based on students' interests and availability, having clear expectations and guidelines, and assessing the collaboration process. Furthermore, the participants provided suggestions and recommendations for future learning experiences which included conducting an adequate number of Elluminate *Live!* sessions, having an active instructor presence, using appropriate tools for collaboration, and providing clear expectations and specific requirements for the online weekly discussion.

In summary, cross-case analysis was undertaken to compare the two cases in terms of similarities and/or differences in order to find the replication. The major findings from the two cases were mostly similar. The major findings which emerged from the analysis of two case studies were discussed in the following section.

### **Discussion of the Major Findings**

This section provides in-depth discussion of the major findings. The major findings from the study were discussed in three sections, corresponding to each of the three research questions.

**Essential conditions for online collaborative learning.** The first research question that this case study aimed to address was: What are the essential conditions required to support student collaboration in a higher education online learning course?

Using the findings from the study, I identified three essential conditions required to support online students' collaborative learning including building a safe and trusting environment, supporting students in order to make them feel comfortable, and preparing students for collaboration. Building a safe and trusting environment was the first essential condition to support online collaboration. The participants in the study highlighted the critical role that a trusting environment played in supporting their collaboration. For example, one participant stated, "there needs to be an environment that supports collaboration and makes people feel comfortable and positive about the process." Students need to feel a sense of belonging and trust in order to recognize that collaboration among themselves as a valuable learning experience (Garrison et al., 2000). According to Tu (2004), building social relationships is a fundamental key in building a safe and trusting learning environment. Thus, an introduction activity was important in an online learning environment in that it gave the students some knowledge about their classmates such as their backgrounds, work experiences, and interests. An introductory

activity can be done synchronously or asynchronously. Also, providing a space for informal interaction such as Course Café in the discussion forum was important in building social relationships in which students interacted with each other, shared their experiences, asked for help, and exchanged resources. Moreover, modeling appropriate messages that showed a respectful behaviour was important in online collaborative learning. One participant recommended that online instructors model respectful responses to their students through indicating appreciation for students' contributions first and then asking for more clarification if needed. Students should be aware that they could negotiate their perspectives, provide constructive feedback, and challenge each other's ideas, but in a professional and respectful manner. According to Remond and Lock (2006), one role of educators is to model appropriate responses that develop social and cognitive relationships.

One of the findings from the study indicated that lack of synchronous discussion meetings may have affected social presence such as a sense of belonging. According to the participants in the second case, more synchronous discussion was requested to build a strong learning community. One participant explained that lack of synchronous discussion in her course did not affect the quality of learning; rather it affected the social presence. Since social presence has been correlated with online learner satisfaction, sense of belonging, and collaborative learning (Garrison & Arbaugh, 2007; Garrison, Cleveland-Innes, & Fung, 2010; Picciano, 2002; Richardson & Swan, 2003; So & Brush, 2008), it is important to have an adequate number of synchronous discussion meetings in online courses. The students in the study suggested having four synchronous meeting discussions throughout a regular semester (13 weeks). Moreover one instructor, based on his international research experiences, suggested having synchronous discussions for undergraduate students every week and for graduate students every two weeks.

The second identified essential condition was to support students being comfortable in the online environment. The instructors provided technical, social, mental and emotional support to help students feel comfortable. In the study, providing technical support enabled students, especially new online students, to collaborate and communicate within online mediums in a meaningful way. Also, facilitating social and cognitive interaction between students was important for collaboration, especially when new students enrolled in a cohort course in which most of the students already knew each other. One of the methods that was used to facilitate social and cognitive interaction was connecting students who had a common interest and/or similar background. Thus, students would be more likely to find an appropriate partner for collaborating. Otherwise, students tended to collaborate with someone based on friendship and consequently some students felt like outsiders (Barkley et al., 2005), and felt they had to work individually as happened for one participant in the study.

The third identified essential condition was to prepare students prior to their engagement in collaborative learning. Using the findings from the study, I built and extended upon previous literature regarding preparing students for collaboration through discussing course expectations, explaining the importance of collaborative learning, and providing clear guidelines for each learning task (Barkley et al, 2005; Chapman, Ramondt & Smiley, 2005; Palloff & Pratt, 2005; Tu, 2004). According to Barkley et al. (2005), students come to classes with a range of experiences and attitudes regarding collaborative work. Some students choose online courses in order to work individually. Therefore, it is important to explain collaborative learning expectations clearly at the beginning of a course in order to reduce the potential for future problems with groups or individuals. In my study, the participants appreciated the instructors'

explanations at the beginning of the semester in which they clarified that collaborative learning was a requirement to achieve the course outcomes. In addition, one of the findings of this study indicated that when clear expectations and guidelines for collaborative learning requirements are given, students appeared more motivated to actively participate in the learning process. For example, one participant described how receiving clear expectations and guidelines influenced her participation in one online course: “I notice that I am far more motivated and active in the one course where the instructor has set out clear expectations and where assessment is based on how active and in depth our consistent collaboration is.” While in another course, she explained that without these two important elements, she found “it really difficult to motivate myself to participate in that particular course.”

**The design of collaborative learning course.** The second research question that this case study aimed to address was: How do the course design and the nature of the assignments influence the degree to which students participated in collaborative learning? To answer this question, findings from the study indicated that four factors needed to be considered in designing online collaborative learning courses. These included selecting relevant content and designing practical challenging tasks, facilitating asynchronous weekly discussion, considering the weekly workload, and assessing the collaborative process.

My study showed that understanding students’ backgrounds and interests needed to be considered in designing online collaborative learning tasks. One of the methods that could be used to understand students’ backgrounds and/or needs was a pre-course needs assessment to enable instructors to meet students’ needs. Findings from the study indicated that the participants appreciated the selection of relevant content in which they shared their experiences, presented their perspectives and negotiated their ideas. Students were then more likely to transfer their

learning to their own life contexts. For example, one participant remarked “these mediums are currently used by students and I’m being taught how to learn about them, how to use them and eventually how to teach students to safely and ethically use them.” In addition, the participants appreciated the design of the practical learning task since they applied what was learned during the course to a final project and then to their respective work and/or life contexts. Another student appreciated the instructor and her fellow student moderators for creating applicable discussion questions that focused on “how are you going to apply this to your project? So that helped to give everybody a personal perspective” and at the same time “made us to think about each other’s jobs, and how the readings could be applied to all these different situations. It was interesting to broaden our perspectives, but also make it applicable to our own workplace.”

In my study, weekly discussions were used to discuss a variety of topics, present different perspectives, share experiences, exchange recourses, and negotiate ideas. Participating in weekly discussions helped students to better understand the content. According to Tu (2004), online discussion is used extensively because “it promotes several types of thinking: critical thinking, high-order thinking, and constructive thinking” (p.53). One participant stated, “we’re all reading the same readings, but people have very different interpretations and applications for them...it made us to think about each other’s jobs and what we do, and how the readings could be applied to all these different situations.” At the end of the semester students were required to design a final project based on their work experiences in which they applied what had been learned throughout the semester to their projects. According to one participant, “I feel that this way of providing education is truly practical, relevant, and it is genuinely an indication of my ability to analyze and collaborate with new ideas, perspectives and information.”



Although weekly discussion had a powerful effect on students' learning, it could be overwhelming for them if it was not carefully designed and facilitated. For example, one participant stated, "the posting on the discussion board was fairly overwhelming. So in some ways when we were trying to summarize it as a group, I think that made it really challenging for us." Another participant mentioned, "it was really hard to figure out what was going on, who was responding to who sometimes." This participant also noted that "if you were off for a day or two, you'd come back on and there could be 50 messages so sometimes the discussion boards just got a little out of hand." Students required clear guidelines and rubrics in order to contribute to weekly discussions. For instance, how was students' participation to be graded? What was the minimum average of responses that each student should post weekly? How long should each response be? Providing this information assisted students in understanding the weekly discussion expectations and thus encouraged them to participate. In addition, instructors modeling the expectations of the discussion contributions such as responding to the discussion questions and other responses assisted students in meeting the desired outcomes. Furthermore, in terms of having a large number of enrolled students, the weekly discussion could be divided into small group of students to be more manageable and efficient and to expedite the sharing of the main findings of each group with the whole class at the end of the weekly discussion as the participant suggested.

Although only one participant in the study talked about the effect of heavy workload in students' level of collaboration, workload should be considered in designing online collaborative learning. Workload and lack of time to work collaboratively have been considered as challenges for online students (Biasutti, 2011; Capdeferro & Romero, 2012; Wang & Woo, 2007).

According to Garrison (2006), if collaboration is the core of the inquiry process, workload must

be seriously considered. Excessive workload affected both the quality and depth of learning experiences.

Assessing the collaboration process motivated students to participate and engage actively in the collaboration process. Otherwise, some students might not participate. For example, in the first case study, all students provided peer review when it was assessed (learning task one). In contrast, only 8 of 23 students provided peer review when it was not assessed (learning task three). According to the instructor, there was need to have an assessment component to the collaborative process even at the graduate level in order to motivate students to participate in the collaboration.

**Structures and scaffolds required to support online students' collaboration.** The third research question to be addressed was: what structures and scaffolds need to be in place to support student collaboration in online course environments? In my study, scaffolding students' collaboration was achieved through teaching students how to collaborate, providing formative feedback on group progress, being available to address students' needs, participating regularly in the weekly discussions, forming groups based on interest and availability, and using appropriate technological tools.

First, teaching learners how to collaborate enhanced learning outcomes (Nussbaum et al., 2009). "Often we ask people to collaborate but people really do not know what it means to collaborate" reported one instructor. Accordingly, providing clear guidelines for collaboration such as what collaboration means, how to provide constructive feedback, and what meaningful dialogue means was a critical step in teaching students how to collaborate. In addition to providing guidelines, modeling the learning process and desired behavior was important in

helping students to meet learning outcomes. For example, the instructors in the study modeled the process of the weekly discussion sessions through posing discussion questions, providing resources, asking participants for clarification, and summarizing the discussion. Thus, students understood clearly what the expectations were. According to one participant, we were “able to see what we needed to do; instead of just telling us what to do, being able to see it in action.”

Second, providing formative feedback on group processes assisted students to access their strengths and weaknesses and thus improve their performances. Similar to the Kupczynski, Ice, Wiesenmayer, and McCluskey’s (2010) mixed method study, the participants in this study highlighted the importance to their success of receiving regular formative feedback. Also, using formative assessment strategy enabled instructors to monitor the group collaboration process and to ascertain the need for additional help and/or resources. Formative feedback was provided also by fellow students in terms of peer review. Similar to van der Pol, van den Berg, Admiraal and Simons’ (2008) findings regarding the advantages of using a peer review method, my study confirmed that using peer review provided an opportunity for students to learn from each other’s performance and gave them a good idea of the criteria for desired products. According to one participant, “I definitely did look at the articles they were reading for the first ones [to] see what type of stuff they were looking at.”

In addition to providing feedback, instructors being available to address students’ needs and concerns was a key factor in online learning success. According to one participant, students did not need to be told what to do, but needed the instructor to be there to address their concerns if they had any. Students needed to be encouraged to contact their instructors if they had any issues and/or concerns and their issues needed to be addressed in a timely manner.

Third, instructors' participation in the weekly discussions was important in facilitating students' discourse. According to Garrison and Arbaugh (2007), interaction and discourse play a critical role in higher-order learning which require structure (design) and leadership (facilitation and direction). In order to facilitate asynchronous discussion, instructors may respond to students' responses, provide additional resources, and ask deeper questions. In my study, the two instructors had different levels of participation in the weekly discussions. In the first case, the instructor participated actively during the first two weeks and then quit participating for the next two weeks. After that interval, his students asked him to participate again in the weekly discussions. The instructor listened to his students' needs and participated after that in the weekly discussions throughout the course. According to the instructor, students needed his participation to validate the discussion rather than to control it. In contrast, the second case instructor participated as the moderator during the first four weeks of discussion and then she mostly did not participate in the following weekly discussions during which time the students were responsible to moderate them, unless she found that they needed redirection or if additional questions needed to be posed. Giving students the role of moderator for the weekly discussions does not mean that instructors quit participating (Baran & Correia, 2009). Similar to the findings in the Mazzolini and Maddison's (2007) mixed method study, students appreciated frequent participation by instructors, particularly when instructors facilitated the discussions via posting initial and follow-up questions, providing feedback, and presenting their own opinions about topics that had been discussed among the students. Therefore, as was the case in the Baran and Correia's (2009) qualitative study, findings from this study recommended instructors to participate regularly in the discussion, sharing their perspectives, experiences, advice, and resources. Furthermore, acknowledging and appreciating students' contributions motivated

students to participate more in the collaboration process. According to Garrison (2006), students need to feel that they are contributing members and gaining knowledge whether it is from instructors or fellow students.

Fourth, forming groups was an important step in collaborative learning. A variety of tactics could be used to form students' collaborative groups. According to Jahng and Bullen (2012), a group forming method had been identified as a significant factor to enhance members' participation in small groups. As was suggested by Barkley et al. (2005) on group formation, findings from this study confirmed that forming groups based on students' interests had some advantages in motivating students to collaborate actively on a particular topic that interested them.

Technological tools used in collaboration needed to be carefully selected in order to ensure that they were suitable for a particular audience and purpose (Januszewski & Molenda, 2010). Wiki space had been used successfully in the study. Instructors and students had used it collaboratively to post the weekly discussion summary and to present the weekly topics and seminars. Blog had been used for reflection purposes in the second case, in which each student wrote a reflection blog based the weekly topics and then responded to two other fellow students' blogs. One participant appreciated using blog for reflection purposes saying that it "was incredible for collaborating [about] new ideas and perspectives." However, the blog did not work well for peer review purposes in the first case. According to the instructor, blog spaces are a public communication forum that could have caused students to hesitate to provide feedback on each other's work. Students needed a more secure place which they believed was less risky in order to provide constructive feedback. It was difficult to draw any hard conclusions from this

finding since only the instructor had talked about the use of the blog possibly discouraging students from providing constructive feedback. Further research is needed to explore technological tools privacy and security influence on students' level of collaboration.

### **Summary**

This chapter presented the cross-case analysis level of the current multi-case study. The main purpose of conducting cross-case analysis was to compare the two cases in terms of similarities and differences. The major findings from both cases were mainly similar. The major findings were discussed comprehensively to answer the three research questions.

## **CHAPTER SEVEN: RESEARCH CONCLUSION AND RECOMMENDATIONS**

In this chapter, I provided a summary of the multi-case study. Also, I highlighted some implications for teaching practice as well as presenting recommendations for future research.

### **Research Summary**

In the study, I investigated instructors' and students' experiences with collaborative learning in graduate online courses. The multi-case study was designed to understand the dynamics and development of online collaborative learning at the graduate course level. I analyzed the collaborative learning process and outcomes from the beginning to completion. Also, the collaboration was assessed through instructors' and students' perspectives in term of what factors successfully supported collaboration, what factors had negative impact on supporting collaboration, and what recommendations and suggestions could be made to enhance future experiences. The objective of the research was to identify factors that influenced a meaningful collaborative learning experience while also identifying what were the necessary structures and scaffolds that needed to be in place to enhance the learning experience.

The multi-case study approach was selected to capture instructors' and students' experiences with online collaborative learning. This approach enabled me to explore similarities and differences in and between the two case studies. The two case studies were selected purposefully because they implemented collaborative learning as the main learning strategy. However, each course was different in instructional design, educational purpose, and number of enrolled students. Data was collected from various sources: semi-structured interviews, documentation, online discussion synchronous and asynchronous forums (Elluminate *Live!* discussion board, emails, wiki, blog), and online observation. Collecting data from various

sources provided a holistic picture of the collaborative process and participants' experience with it. The analyses were conducted in two stages. The first stage was a within case analysis in which each case study was examined comprehensively in Chapters Four and Five. The second stage occurred after each case study was completed and involved a cross-case analysis as presented in Chapter Six. The main reason for the cross-case analysis was to compare cases in terms of similarities and differences.

The participants in the study were invited to participate in a member checking approach to increase the internal validity. After each interview was transcribed, each participant was given the opportunity to review his or her transcript to ensure its accuracy. In addition, after each case report was written, each participant in the study was given the opportunity to review his or her own case study report. They were encouraged to provide feedback and/or comments to ensure the accuracy of the research analysis.

In the findings from the study, I identified three essential conditions required to support online students' collaboration at the graduate level. First, a safe and trusting environment in which students feel comfortable to interact and collaborate effectively needs to be built. Establishing social presence is a fundamental step in building a safe environment. Second, students need to be supported in order to feel comfortable and to collaborate with each other effectively in an online learning environment. Instructors need to provide technical, intellectual, social, and mental support to help students feel comfortable. Additionally, online students need not to hesitate if they want any help and to contact their instructors or IT support based on their needs. Third, online students need to be prepared by their instructors for collaboration through



discussing the course expectations, explaining the importance of collaborative learning, and providing clear guidelines and rubrics for learning tasks.

From the findings, four factors were identified that should be considered in designing online collaborative learning courses. First, designing relevant practical tasks motivates students to participate in the collaborative process in which they share their experiences, present their perspectives, and negotiate their ideas. Second, asynchronous weekly discussion needs to be facilitated. There is a need to provide clear requirements and expectations and modeling for the desired contribution. Also, asynchronous discussion needs to be divided into smaller group discussion in situations where there are a large number of students to be more manageable. Third, weekly workload needs to be considered in designing online collaborative learning. Excessive workload may affect the quality and depth of the collaborative learning experience. Fourth, using summative assessment for the collaboration process motivates students to participate effectively in the learning process.

Furthermore, I found from the study that scaffolding students' collaboration is important in an online learning environment. First, students need to be taught how to collaborate in a meaningful way. This could be done by teaching students collaboration skills achieved through the design of the task, providing guidelines for collaboration requirements, and modeling the process. Students need clear guidelines for collaboration such as they need to understand what is meant by collaboration, how to provide constructive feedback, and what is a meaningful dialogue. Second, communicating with each collaborative group and providing formative feedback assist students to improve their performance and assist instructors to monitor each group's collaboration and to determine if additional help is required. Third, students need to feel

that their instructors are available to address their concerns and for instructors to respond to students in a timely manner. Fourth, having instructors participate in the weekly discussion is important in order for students to validate their dialogue through asking more questions, responding to unanswered questions, and presenting their points of view related to the topics discussed. Fifth, forming groups based on topics of interest motivates students to participate actively in the collaboration process. Sixth, technological tools used in collaborative learning need to be carefully selected to ensure that they are suitable for a particular purpose.

### **Implications and Recommendations**

In the following sections, I summarized the lessons learned from this multi-case study and provided suggestions for future teaching and learning practices and online collaborative learning research.

**Implications.** The implications for online collaborative learning are identified based on the following categories:

**Students.** To foster online collaborative learning, the learner must be responsible and committed to their learning. This will ultimately help them reap the benefits of their learning experiences. Additionally, students should be able to adjust to a new climate, synthesize ideas, and should know how to participate effectively. Palloff and Pratt (2005) identified five characteristics online learners need in order to be successful. They need to be “open” about the personal details of their life, work, and other educational experiences; should be “honest” in expressing their feelings and opinions in a respectful way; should be “flexible” and “humorous” to create a warm, inviting course environment; be willing to take “responsibility” for online community formation; and be willing to work “collaboratively” (Palloff & Pratt, 2005). Not all

learners are educated about collaborative work in an online environment. As a result, they should be taught the necessary skills for collaboration such as providing constructive feedback, challenging each other's perspectives in a respectful manner, and communicating and interacting with each other in a technological medium. Students also need clear expectations and specific requirements for collaboration in order to participate effectively in the learning process. By modeling the desired behavior and expectations, the instructor assists students to better understand what is required of them to meet the learning outcomes.

**Instructors.** A safe and trusting environment should be built in order for meaningful collaboration to occur. The key to building a safe online learning environment is establishing social relationships. Instructors could facilitate these relationships with introductory activities, offering a space for informal interaction such as Course Café, and connecting students who have a common backgrounds and/or interests. In addition, the instructor should provide instruction on proper etiquette and how to word appropriate messages that develop social relationships.

Access to and selection of appropriate technological tools is a key factor in online collaborative learning success. Instructors need to know the strengths and weaknesses of technological tools to ensure they are suitable for a particular purpose. Having access to a variety of technological tools (e.g., synchronous and asynchronous) supports instructors and students to communicate and collaborate in a meaningful way. Also, instructors need to consider learners' needs in selecting collaborative technological tools.

Instructors need to have a strong presence on online collaborative learning environment. According to Shea, Li, and Pickett (2006), "strong and active presence on the part of the instructor—one in which she or he actively guides and orchestrates the discourse—is related both to students' sense of connectedness and learning"(p. 185). Instructors can establish their presence

by posting weekly announcements to remind students about the week's tasks, connecting with each collaborative group to see how the things are progressing, participating in the weekly discussion, providing virtual office hours, sending a public email to acknowledge students' interaction and contributions, and providing feedback on student's performance. This type of active presence from instructors is very important for students' success in online learning courses.

Conducting an adequate number of synchronous discussions helps instructors to build a strong social presence. Findings from this study suggest that four to six synchronous sessions should be conducted throughout a full semester (13 weeks) for graduate level work. These sessions should be used for student discussion in which there is an opportunity to discuss topics that are related to the learning content.

Clear expectations and specific requirements are key elements for success of online student collaboration. Students need clear expectations in order to successfully complete each learning task. Furthermore, they require a clear explanation of collaboration to achieve learning outcomes. Students participate more independently when they understand the process. For example, if asynchronous weekly discussion is one of the learning tasks, then clear and specific requirements should be provided about: how the student's participation will be graded; the minimum amount of responses each student should post weekly; and the length of each response. In addition, by modeling the expectations of the discussion contributions, the instructor assists students in meeting the desired outcomes.

***Institutions.*** If collaborative learning is a priority area, then appropriate support and resources need to be in place for instructors, and students to meet desired outcomes. Professional

learning programs should be provided for instructors to help them learn strategies and techniques for designing and facilitating online collaboration. Programs should require participants to work as learners (i.e. group work) and access the course delivery system (i.e. submit an assignment) in order to understand online the students' needs and challenges, such as fears, stresses, and frustrations (Roman, Kelsey, & Lin, 2010; Wolf, 2006). Then, participants should move into the teacher role to learn how to design assignments, manage online discussions, and provide feedback (Roman, Kelsey, & Lin, 2010). Furthermore, institutions should provide ongoing support for online instructors such as access to instructional designers to help in the design of the course structure and learning tasks.

Educational institutions should provide information to incoming students about the expectations of online programs, such as collaborative learning, in order to help them adjust their expectations and preferences and ultimately help them make decisions about their enrolment in the program (Capdeferro & Romero, 2012). This orienting step is important because some students choose online courses to specifically to work individually (Barkley et al., 2005).

**Recommendations for future research.** This multi-case research was delimited to two online graduate courses. The findings of the study reflected only the specifics of each case group. In order to provide more generalizations about the research findings, a larger study with a more varied sample of courses from different disciplines and different levels of courses (i.e., graduate and undergraduate level) is recommended for the purpose of exploring essential conditions required to support online collaboration and participants' experience with online collaborative learning for future research.

Based on the findings from the study, new questions have emerged in relation to

instructors' presence in asynchronous discussions. Some online instructors participated regularly in weekly discussions to raise the discourse to a higher level, while others took a back seat and let students construct their own knowledge. The critical questions are: What is the influence of instructor participation in weekly online discussions on students learning, motivation, and satisfaction? How can instructors participate in weekly online discussions so as to lead learning without taking over the discussion? An exploratory study is recommended to explore these initial questions.

Another area of future research in online collaborative learning is the influence of technological tools on students' level of collaboration. For example, further research is recommended to explore the security and privacy of technological tools and their influence on the level of online student collaboration. For instance, what influence does the use of public blogs for peer review tasks have on the level of constructive feedback provided by students? Do students require more secure tools to provide constructive feedback to their peers?

## **Conclusion**

The use of technology-enabled learning environments for education has provided a greater opportunity for collaboration to occur. Experts, instructors, facilitators and students from different locations around the world are able to connect and engage intellectually, mentally, socially and culturally to achieve common learning goals. Implementing collaborative learning strategy in online courses has several advantages such as helping students to gain a deeper level of constructing knowledge through dialogue where different perspectives are presented, ideas are negotiated, and misconceptions are resolved. The study identified three essential conditions that were required to support online students' collaboration: 1) building a safe environment; 2)

helping students to feel comfortable; and 3) preparing students for meaningful collaboration. Also, the study identified factors that should be considered in designing online collaborative learning and the necessary structures and scaffolds that need to be in place to support online collaborative learning. Meaningful planning for online collaborative learning needs to involve what to do before, during and after an educational experience (Redmond & Lock, 2006).

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**APPENDIX A: INSTRUCTOR CONSENT FORM**



*Please note that, due to the nature of data collection and subsequent reporting, your participation in this research may be widely recognized by those students who participated in the online course as well as by other members of your Faculty.*

*This research project may involve the collection of unencrypted data via electronic means (e.g. email, Skype, social networking sites, etc); as such your information may be seen by others, and may also be subject to US laws including the USA Patriot Act (2001). Risks are minimal, however, and will be similar to those involved with the use of any electronic data transfer or networking application.*

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**Name of Researcher, Faculty, Department, Telephone & Email:**

Noha Fahad Altowairiki  
Faculty of Education  
Educational Technology Specialization  
Tel: 403-667-7504  
Email: nfhaltow@ucalgary.ca

***Supervisor:***

Jennifer Lock, PhD  
Faculty of Education  
EDT 602C  
University of Calgary  
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Email: jvlock@ucalgary.ca

**Title of Project:**

Instructors and Students' Experience with Online Collaborative Learning in Higher Education

***Sponsor:***

*N/A*

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This consent form, a copy of which has been given to you, is only part of the process of informed consent. If you want more details about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

The University of Calgary Conjoint Faculties Research Ethics Board has approved this research study.

This consent form is for participation in a research study as part of my Master of Science (M.Sc) degree at the University of Calgary, Faculty of Education (Educational Technology Specialization), under the supervision of Dr. Jennifer Lock.

**Purpose of the Study:**

The purpose of the research is to explore instructors and students' experiences with collaborative learning within online graduate courses. The focus is on how instructional designers and/or instructors create an online collaborative learning course and how instructors and students experience this

collaborative learning within their online learning environment. The research will examine the collaboration process from the beginning of the collaborative learning process to its completion. The researcher will also analyze the process of collaboration by investigating how participants negotiate, share meanings, and make decisions. Additionally, the dynamics of online learning will be studied to determine how they maintain and support collaboration activities within online graduate courses. The study will explore factors and conditions that influence a meaningful collaborative learning experience. Multiple sources of data will be used such as: instructors' and students' interviews, online observations, online discussion forums, and course document collection (course description, outlines, and online learning artifacts).

Since your online course is relevant to the study, you are kindly invited to be a participant.

### **What Will I Be Asked To Do?**

As an instructor, your participation in this study will include three semi-structured interviews over the course of the academic semester. These interviews will help provide an understanding of the design, process and product of collaboration and will be conducted with you at mutually agreed upon times and locations through convenient methods of communication such as face to face meetings, telephone conversations, Skype or emails. Each interview will take approximately 30 minutes in length and be audio-recorded with your consent. You will be given the opportunity to review your interview transcripts and provide feedback. The interview transcript will be e-mailed to you and you will have two weeks from the date the e-mail is sent to you to provide feedback and/or additional comments.

During the study the researcher will conduct online observations of synchronous and asynchronous online discussions so as to understand the online collaborative learning process. Observations will begin at the start of the course and will continue throughout the weeks the course is offered. I will not participate in the online learning environment but rather observe the students' interaction and participation in the collaborative learning process. I will not be evaluating the students' online participation instead I will be examining the dialogue as part of data analyses for research purposes.

In addition, the researcher will collect some qualitative course documents and assessments, such as course description, outlines, and online learning artifacts. You will identify which artifacts you will share with the researcher and then send them to her. You will identify where to access the item online or provide a hardcopy of the item. Please note that artifacts will not be returned to you.

All collected information (participants name, online learning artifacts) under this study will remain anonymous and will not appear anywhere in the thesis.

The information collected during the study is confidential. In the research document and with data gathered from you, there will be no reference to your specific name. Pseudonyms will be used for all participants and any identifying information (e.g. course name and/or number, and participants names) will be deleted from the report.

The decision to participate or not in this study, or to withdraw at any time, will not impact your work or relationship with the University of Calgary. Your participation is completely voluntary. There is no remuneration for participating in this study. You have the right to withdraw from the study at any time. If you withdraw, your data will not be included in the research.

### **What Type of Personal Information Will Be Collected?**

No personal identifying information will be collected in this study, and all participants shall remain anonymous.

- *I will participate in three interviews and allow for the interview to be audio recorded.*  
Yes: \_\_\_ No: \_\_\_
- *I grant permission to use my online communication (synchronous and asynchronous communication forums) for Winter 2013 course.*  
Yes: \_\_\_ No: \_\_\_
- *I grant permission for the use of the course documents (e.g., course description, course outlines, learning artifacts, etc) with permission to photocopy or make a digital copy of the artifacts.*  
Yes: \_\_\_ No: \_\_\_

### **Are there Risks or Benefits if I Participate?**

There is no risk to you. However, you are being asked to make a voluntary decision as to whether you wish to participate in this study. Please read and think about the information given above. If there are any parts of the information that you do not understand, please ask the researcher to explain it. Upon request, a copy of the information, data, and results will be made available to you. You will always be free to discontinue participation at any time during the research.

The overall (summary) research results will be shared with the research participants. The research results may be beneficial to research participants in many ways, such as identifying essential conditions, structures and scaffolding that were required to support student collaboration within an online learning course at the higher education level. Thus, the data will assist the instructional designers and online instructors with creating a meaningful collaboration experience and enhancing the learning process.

### **What Happens to the Information I Provide?**

Participation is completely voluntary and confidential. You are free to discontinue participation at any time during the study. All data will be stored in a locked file cabinet in the researcher's office during the study. Electronic data will be password-protected. No one except the researcher and her supervisor will be allowed to see or hear any of the documents or the interview tapes. All data collected during the study will be anonymous. Only aggregated data will be summarized for the presentations or publications (e.g. conferences and journal publications) of results. All published results of the study will contain only aggregated conclusions of data from which no individual participant can be identified. Students can be assured that no information will be shared with your course instructors. The researcher will retain all the information and records in a secure location after successful completion of the study for a period of two years, after which time she will destroy them.

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### ***Signatures (written consent)***

Your signature on this form indicates that you 1) understand to your satisfaction the information provided to you about your participation in this research project, and 2) agree to participate as a research subject.

In no way does this waive your legal rights nor release the investigators, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from this research project at any time. You should feel free to ask for clarification or new information throughout your participation.

Participant's Name: (please print) \_\_\_\_\_

Participant's Signature \_\_\_\_\_ Date: \_\_\_\_\_

Researcher's Name: (please print) \_\_\_\_\_

Researcher's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Return Form:** If you decide to participate in this study, please return the completed consent form to Noha Altowairiki. You can return it to her in person, or by e-mail. See below for her contact information.

#### **Questions/Concerns**

If you have any further questions or want clarification regarding this research and/or your participation, please contact:

*Ms. Noha Altowairiki  
Student in the Graduate Program in Education  
Tel: 403-667-7504, email: [nfaltow@ucalgary.ca](mailto:nfaltow@ucalgary.ca)  
Supervisor: Dr. Jennifer Lock, Faculty of Education,  
Tel: 403-220-6321, Email: [jvlock@ucalgary.ca](mailto:jvlock@ucalgary.ca)*

If you have any concerns about the way you've been treated as a participant, please contact the Senior Ethics Resource Officer, Research Services Office, University of Calgary at (403) 220-3782; email [rburrows@ucalgary.ca](mailto:rburrows@ucalgary.ca).

A copy of this consent form has been given to you to keep for your records and reference. The investigator has kept a copy of the consent form.



**APPENDIX B: STUDENT CONSENT FORM**



Please note that, due to the inclusion of student work and the contents of online discussions, your participation in this research may be widely recognized by the online course instructor, your fellow online students, and any others who are familiar with your work.

This research project may involve the collection of unencrypted data via electronic means (e.g. email, Skype, social networking sites, etc); as such your information may be seen by others, and may also be subject to US laws including the USA Patriot Act (2001). Risks are minimal, however, and will be similar to those involved with the use of any electronic data transfer or networking application.

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**Name of Researcher, Faculty, Department, Telephone & Email:**

Noha Fahad Altowairiki  
Faculty of Education  
Educational Technology Specialization  
Tel: 403-667-7504  
Email: nfhaltow@ucalgary.ca

***Supervisor:***

Jennifer Lock, PhD  
Faculty of Education  
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***Sponsor: N/A***

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**Purpose of the Study:**

The purpose of the research is to explore instructors and students' experiences with collaborative learning within online graduate courses. The focus is on how instructional designers and/or instructors create an online collaborative learning course and how instructors and students experience this collaborative learning within their online learning environment. The research will examine the collaboration process from the beginning of the collaborative learning process to its completion. The researcher will also analyze the process of collaboration by investigating how participants negotiate, share meanings, and make decisions. Additionally, the dynamics of online learning will be studied to determine how they maintain and support collaboration activities within online graduate courses. The study will explore factors and conditions that influence a meaningful collaborative learning experience. Multiple sources of data will be used such as: instructors' and students' interviews, online observations, online discussion forums, and course document collection (course description, outlines, and online learning artifacts).

Since your online course is relevant to the study, you are kindly invited to be a participant.

**What Will I Be Asked To Do?**

As a student, your participation in this study will include two semi-structured interviews over the course of the academic semester. These interviews will help provide an understanding of the design, process and product of collaboration and will be conducted with you at mutually agreed upon times and locations through convenient methods of communication such as face-to-face meetings, telephone conversations, Skype, or emails. Each interview will take approximately 30 minutes in length and be audio-recorded with your consent. You will be given the opportunity to review your interview transcripts and provide feedback. The interview transcript will be e-mailed to you and you will have two weeks from the date the e-mail is sent to you to provide feedback and/or additional comments.

During the study, as the researcher, I will conduct online observations of synchronous and asynchronous online discussions so as to understand the online collaborative learning process. Observations will begin at the start of the course and will continue throughout the weeks the course is offered. I will not participate in the online learning environment but rather observe the students' interaction and participation in the collaborative learning process. I will not be evaluating your online participation instead I will be examining the dialogue as part of data analyses for research purposes.

In addition, as the researcher, I will collect some qualitative course documents and assessments, such as course description, outlines, and online learning artifacts. You will identify which artifacts you will share with me and then send them to me. You will identify where to access the item online or provide a hardcopy of the item. Please note that artifacts will not be returned to you. All collected information (participants name, online learning artifacts) under this study will remain anonymous and will not appear anywhere in the thesis.

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The decision to participate or not in this study, or to withdraw at any time, will not impact your work or relationship with the University of Calgary. Your participation is completely voluntary. There is no remuneration for participating in this study. You have the right to withdraw from the study at any time without stating your reasons. If you withdraw, the research process that involves your participation will be stopped immediately, and your data will not be included in the research. To withdraw from the study you should contact with the researcher directly.

### **What Type of Personal Information Will Be Collected?**

No personal identifying information will be collected in this study, and all participants shall remain anonymous.

- *I will participate in two interviews and allow for the interview to be audio recorded.*

Yes: \_\_\_ No: \_\_\_

- *I grant permission to use my online communication (synchronous and asynchronous communication forums) for Winter 2013 course.*

Yes: \_\_\_ No: \_\_\_

- *I grant permission for the use of my artifacts (e.g., assignments such as wiki, blog postings, etc) with permission to photocopy or make a digital copy of the artifacts.*

Yes: \_\_\_ No: \_\_\_

### **Are there Risks or Benefits if I Participate?**

There is no risk to you. However, you are being asked to make a voluntary decision as to whether you wish to participate in this study. Please read and think about the information given above. If there are any parts of the information that you do not understand, please ask the researcher to explain it. Upon request, a copy of the information, data, and results will be made available to you. You will always be free to discontinue participation at any time during the research.

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### **What Happens to the Information I Provide?**

Participation is completely voluntary and confidential. You are free to discontinue participation at any time during the study. All data will be stored in a locked file cabinet in the researcher's office during the study. Electronic data will be password-protected. No one except the researcher and her supervisor will be allowed to see or hear any of the documents or the interview tapes. All data collected during the study will be anonymous. Only aggregated data will be summarized for the presentations or publications (e.g. conferences and journal publications) of results. All published results of the study will

publications (e.g. conferences and journal publications) of results. All published results of the study will contain only aggregated conclusions of data from which no individual participant can be identified. Students can be assured that no information will be shared with your course instructors. The researcher will retain all the information and records in a secure location after successful completion of the study for a period of two years, after which time she will destroy them.

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**Signatures (written consent)**

Your signature on this form indicates that you 1) understand to your satisfaction the information provided to you about your participation in this research project, and 2) agree to participate as a research subject.

In no way does this waive your legal rights nor release the investigators, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from this research project at any time. You should feel free to ask for clarification or new information throughout your participation.

Participant's Name: (please print) \_\_\_\_\_

Participant's Signature \_\_\_\_\_ Date: \_\_\_\_\_

Participant's Email: \_\_\_\_\_

Your email address is required so that the researcher can contact you to arrange for the interview.

Researcher's Name: Noha Altowairiki

Researcher's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Return Form:** If you decide to participate in this study, please return the completed consent form to Noha Altowairiki. You can return it to her in person, or by e-mail. See below for her contact information.

**Questions/Concerns**

If you have any further questions or want clarification regarding this research and/or your participation, please contact:

*Ms. Noha Altowairiki*  
*Student in the Graduate Program in Education*  
*Tel: 403-667-7504, email: [nfaltow@ucalgary.ca](mailto:nfaltow@ucalgary.ca)*  
*Supervisor: Dr. Jennifer Lock, Faculty of Education,*  
*Tel: 403-220-6321, Email: [jvlock@ucalgary.ca](mailto:jvlock@ucalgary.ca)*

If you have any concerns about the way you've been treated as a participant, please contact the Senior Ethics Resource Officer, Research Services Office, University of Calgary at (403) 220-3782; email [rburrows@ucalgary.ca](mailto:rburrows@ucalgary.ca).

## APPENDIX C: FIRST INTERVIEW—INSTRUCTOR QUESTIONS

### Collaboration

- What are the characteristics of good collaborative work?
- Based on your experience, what are the essential conditions required to support student collaboration within an online learning course?
- Based on your experience, how do online instructors encourage and facilitate students' collaboration and interaction?
- What types of responsibilities and roles must be shared with online instructors and learners to enhance the collaboration process?

### Course

- What are the major goals and objectives you would like to address in this course?
- Describe how a collaborative learning environment will be fostered and supported during the course?
- How will collaboration groups be formed? Who takes responsibility for creating the collaborative groups? Why?

### Design

- Describe how you designed the course to engage students in meaningful collaboration experiences?
- Are there specific factors that should be considered when designing collaborative learning activities for online courses? Explain
- What kinds of assignments have you designed to engage students in the learning process? Why?

- How do the course design and the nature of the assignments influence the degree to which students participate in collaborative learning?
- Describe the types of structures and scaffolding that will be used in this course to support student collaboration?

**General**

- Is there anything else would you like to share with me about online collaborative learning?

## **APPENDIX D: FIRST INTERVIEW—STUDENT QUESTIONS**

### **Collaboration**

- What are the characteristics of a good and meaningful collaboration?
- What types of responsibilities and roles must be shared with online instructors and learners to enhance the collaboration process?
- What do online learners need in order to collaborate actively?
- What key factors should be in place to encourage students to participate actively in the collaboration process?
- What challenges might students face during the collaboration process?

### **Course Experience**

- At this point, describe your experience with this collaborative learning course?
- What is your group work plan?
- Based on your experience, how do online students encourage each other to participate actively in the collaboration process?
- How do online instructors facilitate and support online collaboration?
- What kinds of technological tools have been used to support online collaboration?
- Describe the types of structure and scaffolding being used to support collaboration?
- How do structure and facilitation support students' collaboration?

### **General**

- Is there anything else would you like to share with me about online collaborative learning?



## **APPENDIX E: SECOND INTERVIEW—INSTRUCTOR QUESTIONS**

### **Course Experience**

- Describe your experience with this online collaborative course over the semester (e.g., role you played)?
- Describe how students engaged and collaborated during the course.
- From your perspective, how did modeling the first online discussions help students to moderate their week discussions?
- In the design and facilitation of the course, what factors do you believe have been successful in fostering collaboration?
- What factors do you believe had a negative impact on supporting students' collaboration?
- Mid term survey had been used in the course, could you please tell me about it? (e.g., students' feedback, suggestions)

### **Collaboration Process and Product**

- How did online collaboration progress develop from the beginning of the course to the end?
- Providing formative feedback had been used during the course. Did providing formative feedback assist collaborative learning process? Explain.
- Based on your experiences, what key factors should be in place to encourage students to actively participate in the collaboration process?
- How did the design and structure of the course support students' collaboration?

- In comparison of each group's collaboration, was there any significant difference in the process and/or the quality of the product? Explain
- Was there any challenge with the collaboration process or product during the course? Explain.

### **Instructor role**

- How did you facilitate and support the collaboration process?
- How did you guide students during their collaboration processes?

### **General**

- Based on your current experience, what would you change or alter in the design and facilitation of the course to enhance the collaboration process? Why? Please provide examples.
- Given your experience with an online learning environment, what recommendations can you make in terms of designing collaborative learning courses for higher education?
- Is there anything else you would like to share with me about online collaborative learning?

## **APPENDIX F: SECOND INTERVIEW—STUDENT QUESTIONS**

### **Course Experience**

- Describe your experience with this online course.
- In the design and facilitation of the course, what factors do you believe have been successful in fostering collaboration?
- What factors do you believe had a negative impact on supporting students' collaboration?
- Was there any challenge with the collaboration process or product during the course? Explain.

### **Collaboration Process and Product**

- Are you satisfied with the collaboration process and product (e.g. achieved your goals, met your expectations)? Explain.
- Describe the development of collaboration process throughout the course?
- How did the instructor guide and facilitate collaborative learning during the semester?
- Providing formative feedback had been used during the course. How did that assist the collaborative learning process? Explain
- What structures or guidance were given to you that support your group collaborative process?

### **General**

- If you were given the opportunity to change or alter the design and facilitation of this course, what change would you make to enhance the collaboration process and/or product? Why? Please provide examples.

- Given your experience with an online learning environment, what recommendations can you make in terms of designing collaborative learning courses for higher education?
- What recommendations can you provide to online instructors to help students collaborate in a meaningful way?
- Is there anything else you would like to share with me about online collaborative learning?