BARRIERS AND CHALLENGES EXPERIENCED BY LEARNERS IN A WEB-BASED MASTERS OF EDUCATION PROGRAM

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BARRIERS AND CHALLENGES EXPERIENCED BY LEARNERS IN A WEB-BASED MASTERS OF EDUCATION PROGRAM

by

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A thesis submitted to the

School of Graduate Studies

in partial fulfillment of the

requirements for the degree of

Master of Education

Faculty of Education
Memorial University of Newfoundland

September 2003

St. John's

Newfoundland

Your file Votre référence
ISBN: 0-612-99065-6
Our file Notre référence
ISBN: 0-612-99065-6

In loving memory of my parents

Earl and Delores MacDonald

Abstract

The purpose of this study was to gain insight into the experiences of students in a web-based graduate program and to identify, from the learners' perspectives, some of the barriers and challenges encountered. The study, which involved twenty students, relied on qualitative methodology. Data were collected entirely through the use of web-based technology making use of a discussion forum, online questionnaire, and synchronous chat within WebCT™.

The findings of the study are grouped according to three themes: New Forms of Communicating, New Forms of Learning, and New Forms of Interacting. Some of the main challenges as described by the participants, include the following: use of asynchronous and synchronous forms of communication, participation in discussion forums, isolation as a learner, inefficiency of online communication, lack of opportunity to socialize, adaptation to new roles as learners, need to acquire new skills, lack of feedback and interaction from instructors, lack of technical and web-based communication skills among instructors and web-based group work.

The study indicates that being a learner in a web-based environment has implications for the learner, as well as for the instructor and the institution, and that a learner in a web-based environment cannot be viewed in the same manner as a learner in a face-to-face environment.

Acknowledgements

Upon reflection of the past year, during which I worked on this thesis, some very key people who made the successful completion of this thesis possible come to mind. It is with sincere appreciation and gratefulness that I acknowledge these people who supported me throughout this process.

The first person I would like to thank for her constant support and assistance is my advisor, Dr. Elizabeth Murphy. Without her involvement, guidance, and vision, this work would not have come to fruition. Her constructive, thought-provoking, positive, and timely feedback challenged me to think and to accomplish much more than I had set out to do.

This project would not have been possible without the participation of twenty, already very busy, master's students. I sincerely thank each of you for sharing your experiences, thoughtful insights, and time to this project.

Thank you also to friends and co-workers who expressed interest in my work, loaned me resources, shared ideas, offered suggestions, and just let me talk at times about my research.

Finally, I would like to thank my family. For my sister Lori and my brother John for the interest you showed in my work and for the time you spent just listening. For my three beautiful daughters, Katie, Lauren and Leah, for your patience and understanding as "Mommy worked on her thesis" and for allowing me to take time away from you as I worked on this project. My final thanks are saved for my husband Johngary for his

unending belief and support in my abilities and his understanding of the need for me to complete this work.

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Chapter One

Introduction

The recent emergence of technologies such as the World Wide Web and online communication tools allow universities to offer distance education programs to a global population 24 hours a day 7 days a week (Hara & Kling, 1999). Couple this with today's access to affordable computers and high-speed Internet connections, and an environment is created that offers both teachers and learners the opportunity to interact in a way that "transcends the traditional boundaries of time and space" (Harasim, 1990, p. xvii). However, as Hara and Kling observe, along with this opportunity to learn in a web-based setting, come barriers and challenges that must be overcome or tolerated by adult students. The technology of web-based learning can be a very effective tool to deliver distance learning, but as Hara and Kling note, technology alone is not the entire solution. The authors also caution that when the choice is made to use web-based technology to deliver education, there may be compromises or sacrifices required by both instructors and students in terms of the way they are accustomed to teaching and learning. McLoughlin (2000) also cautions that new technologies can interfere with learning rather than support learning due to their instability and unfamiliarity.

The evolution of distance education to a web-based model allows institutions to serve many different kinds of learners. Matthews (1999) categorizes these learners as part-time learners, time-strapped adult learners, and remotely based learners. The majority of learners who access distance education programs as a means of meeting their

educational goals tend to fit into the category of adult learners (Rossman, 2000). Moore and Kearsley (1996 as cited in Rossman) observe that, given the demographics on distance education students from not only the United States, but also the world, "the more one understands the nature of adult learning, the better one can understand the nature of distance learning" (para. 9).

Recent literature involving adult learners and the Internet suggests that, for adults who choose to learn via distance education, the practice of doing so and transitioning from a traditional model can be a challenging learning experience (Burge, 1994; Kochtanek & Hein, 2000; Hara & Kling, 1999). As adult learners in an online environment, they are faced, not only with the challenges of learning as an adult, but also with new challenges brought about by the inclusion of technology (French, 1999). They are, in many cases, transitioning from a traditional classroom-based model of learning to the new model of online learning. This new model often reflects a focus on self-directed learning and a learner-centered design (Lyman, 1999).

The need identified in the literature to develop further knowledge on web-based learning, specifically on the barriers and challenges faced by learners, served as the rationale for undertaking this study. As Hara and Kling (1999) contend "distance education literature is dominated by enthusiastic studies and accounts" (para. 2). They recommend that actual student experiences in distance education should be considered and that the phenomenon of distance education needs to be critically discussed.

The purpose of this study is to gain insight into the experiences of a group of adult learners participating in web-based graduate education courses and to identify the barriers

and challenges encountered by these learners. The students invited to participate in the study were students enrolled in Master of Education web-based courses that are delivered 100% via distance utilizing the WebCT™ e-learning system through Memorial University of Newfoundland, Canada.

1.1 Statement of Problem

With the increase in offerings of web-based courses and programs by universities, the need exists for additional research into learners' experiences and on what their perceptions are of the barriers and challenges they encounter in this environment (Hara & Kling, 1999). Several authors (Chin, 1999; Owston, 1997; Burge, 1994) have indicated that there is a need for additional research in this area in order to make web-based learning a more effective method of delivering distance learning and a mode with which learners feel comfortable and confident.

Some adult education researchers have done work on identifying the barriers encountered by adult learners. Lyman (1999) has examined barriers encountered by adult learners in web-based education and focused her discussion of adult learners around the most commonly identified barriers encountered by adult learners in the pursuit of education. These barriers on which Lyman focuses are identified by Cross (1981) in Merriam and Caffarella (1991). Two, which are discussed here, include: situational barriers, institutional barriers, and dispositional barriers. In terms of situational barriers, Merriam and Caffarella identify two of the most common as time and cost. Lyman views the very nature of the Internet as a means towards the removal of these situational

barriers. The introduction of web-based courses has removed the need for students to attend courses on-campus. With its "anytime, anywhere" philosophy, learners can access their courses on their own time and save on travel time associated with an on campus-based program. Costs associated with lost work time, childcare and travel expenses are identified by Lyman as traditional barriers that may be impacted on by web-based learning.

Lyman (1999) cautions, however, that web-based learning may also contribute to some of the newer barriers experienced by adult learners. Some of the new barriers identified with the cost of web-based learning are the expenses associated with purchasing computer equipment, Internet access, software and hardware. The new time barriers that may evolve with web-based learning, notes Lyman, include wasting time searching for information on the Internet, adjusting to an independent, self-directed learning model, becoming familiar with software and learning systems platforms, and learning to communicate in a web-based environment. "The types of barriers that keep adults from participating in learning must be addressed adequately if Internet-based learning is to be more successful than traditional media for learning" (Lyman, p.102). Lyman's discussion of institutional barriers in the context of web-based learning centers on the removal or minimization of traditional institutional barriers with the introduction of Internet-based learning. She identifies traditional institutional barriers for adult learners as the failure to inform adults of available courses, adults' unfamiliarity with the structure and processes of post-secondary institutions, and the lack of a strong customer-service model.

Although there has been some research done in the area of adult learners and their experiences with web-based learning, we need to increase our knowledge of this area by investigating different contexts and different instances of web-based learning. This research proposed to focus on the process of web-based learning and to add to the present body of knowledge that exists in the area of barriers and challenges encountered by learners in a graduate web-based environment.

1.2 Purpose and Significance of Study

The purpose of this study was to gain insight into the experiences of students in web-based education graduate programs and to identify, from the learners' perspectives, some of the barriers and challenges encountered. In order to accomplish this purpose, the research proposed a study of students enrolled in Master of Education courses offered by Memorial University of Newfoundland.

The data gathered and the conclusions drawn within this study may provide institutions with information that will allow them to more effectively meet the needs of their students in these types of courses. It is anticipated that by using this information gained directly from web-based learners' perspectives, institutions and instructors will gain knowledge they may find useful when designing and delivering web-based courses. By increasing our knowledge of web-based learning, we can assist institutions in the future development and delivery of web-based courses, thus directly benefiting students. In addition, web-based learning in general will potentially benefit from the generation of

new knowledge and perhaps new insights into the existing body of research on graduate level web-based learning.

It is anticipated that the findings generated by this study and presented in this thesis will add to the existing body of knowledge in the area of web-based learning and allow for a comparison of the barriers identified by web-based learners. The findings of this study may also be used by researchers when investigating and designing future areas of research on the subject of web-based learning and web-based learners. In addition, this study presents various implications for further research arising from this study that may be used by researchers.

1.3 Research Questions

This study proposed to investigate the following questions:

1. What are some of the barriers and challenges identified by students?
2. What is the nature of the barriers and challenges encountered by students?

1.4 Context of Study

Memorial University of Newfoundland (MUN) has a well-established history of delivering Master of Education courses. The Faculty of Education at MUN offers Master of Education programs in five areas of study. These five areas include: Educational Leadership Studies, Teaching and Learning Studies, Counselling Psychology, Post-secondary Studies, and Information Technology. A number of courses within these programs are available via distance. Distance Education Learning Technologies (DELT)

is responsible for the delivery of distance courses at Memorial University. One of the methods of delivery used by DELT is web-based technology. A number of web-based delivery platforms are used to deliver distance courses at Memorial. One in particular is the WebCT™ e-learning system. During the academic year 2001-2002, the Faculty of Education through DELT offered ten web-based courses using the WebCT™ system. During this time approximately 124 students participated in these web-based graduate education courses. During the time of this study, MUN was transitioning to the use of WebCT™ and planned to deliver future web-based courses through this medium only. This research, therefore, focused only on those graduate courses offered by the Faculty of Education at Memorial University that used the WebCT™ system. The original intent of this study was to include participants from among the students enrolled in all web-based courses offered by MUN during the Fall 2002 semester. In the Fall 2002 semester, MUN offered thirteen web-based courses. A total of approximately 150 students were enrolled in these courses. During the Fall 2002 semester, between 75 and 100 students were enrolled in WebCT™ based courses. These students were invited to participate in the study. The majority of students who responded to this invitation to participate were students from the Master of Education (Information Technology) (M.Ed. (IT)) program. As a result, a decision was made to limit participation in the study to students from the M.Ed. (IT) program.

1.5 Limitations of Study

The study and its findings are limited in that the study involved only students from the M.Ed. (IT) program and not web-based education programs in general. The findings of the study are also limited to a graduate program and do not include undergraduate or P-12 web-based programs. Finally, the findings will be limited to students taking courses using WebCT™.

1.6 Summary

This chapter examined the rationale behind this study and presented the context in which the experiences and perceptions of adult learners participating in a web-based graduate program were to be studied. The chapter presented some of the work done by adult education researchers in the area of barriers encountered by adult learners within the context of web-based learning. Several of the categories of barriers including situational and institutional barriers, were identified and discussed.

In this chapter, the purpose of the study and its significance were discussed. The identified purpose of the study was to gain insight into the experiences of students in web-based education graduate programs and to identify, from the learners' perspectives, some of the barriers and challenges encountered. It is anticipated that by using this information gained directly from web-based learners' perspectives, institutions and instructors will gain knowledge they may find useful when designing and delivering web-based courses. In addition, web-based learning in general will potentially benefit from

the generation of new knowledge and perhaps new insights into the existing body of research on graduate-level web-based learning.

This chapter presented two questions proposed by the researcher and to be investigated through the course of the study. These questions looked specifically at the barriers and challenges identified by the students, and the nature of these barriers and challenges. The context of the study was described and information was provided on the master-level web-based programs offered by the Faculty of Education at MUN. During the fall of 2002, approximately 100 students enrolled in these programs were invited to participate in this study. The majority of students who responded to the invitation to participate were students from the M.Ed. (IT) program. As a result, a decision was made to limit participation in the study to students from this program. Finally the limitations of the study were presented. The section discussed the limitations of having only study participants from the M.Ed. (IT) program, students specifically using WebCT™ and graduate students.

The next chapter provides a review of pertinent literature in order to explore perspectives central to this study. This includes a review of studies focusing on the distance education perspective, the web-based delivery perspective and studies specific to the use of WebCT™.

Chapter Two

Review of the Literature

The concept of barriers and challenges is an area that has been researched in the context of distance education delivery using various methods of delivery such as self-directed modules, telelearning, videoconferencing, and most recently, the Internet. This chapter explores current literature that informed this study by presenting summaries of prior research. The areas of prior research presented in this chapter include research conducted in the area of student experiences in distance education in general, research that examined student perspectives using web-based delivery, and finally studies that examined student experiences when WebCT™ was used as the e-learning delivery system.

2.1 Distance Education Perspective

A study by Purnell, Cuskelly, and Danaher (1996) involving distance learners from Central Queensland University in Australia explored the key issues identified by tertiary distance education students. Although the specific delivery method is not identified, it is surmised that it was not a web-based method, but more traditional in nature. The study's goal was to examine ways of improving the quality of delivery of distance education. To be able to do this, "it is critical to understand the needs, interests, and demands of students" (Purnell et al, p. 76). Participants in the study represented both graduate and undergraduate students and were selected from urban and rural campuses. Participants in

the study identified six interrelated areas of concern. These included: contact with lecturers/tutors, timely feedback on assessment tasks, flexibility in terms of encouraging self-paced learning, timely arrival of study materials, optional access to mentors, and educational technology in terms of access costs and technical support. One of the main recommendations of the study was for an improved range of support services to meet the needs of both urban and rural learners.

Weigand's (1999) research involving distance learners in a university telecourse program identified a number of obstacles encountered by the adult learners involved. Weigand noted that although the students identified many advantages to this method of distance education, they also noted a number of disadvantages as follows:

- students found that distance programs require more homework than traditional programs;
- some students found procrastination an issue in terms of completing course work;
- other students missed the structure of a traditional classroom and weekly lectures, and, as a result, found it difficult to stay on track;
- students noted the lack of interaction with fellow students and instructor as a disadvantage. A result of this was that students were often unsure of their academic progression in a telecourse.

In light of these findings, Weigand made the observation that for most of the students in the program, the convenience of telelearning outweighs the lack of interaction. She concluded that "adult learners must be active participants in the evaluation process in order to maintain their commitment and retention. It is important to review program

goals and objectives periodically with the students and to obtain their feedback" (para. 41).

Potter (1998) conducted research into student perspectives on support service needs when enrolled in nonweb-based distance courses. Her study included distance students at three Canadian universities. Support services in this study were defined to include the "many forms of assistance that are intended to both remove barriers and promote academic success" (p.7). Among the findings was identification by participants of the importance of such services as provision of course information and advice and guidance and orientation to resources and learning formats. Participants also emphasized communication with and access to the instructor for feedback and encouragement and the need for flexibility in distance learning. Study participants also identified factors that hindered their academic progress through distance study. The most common included communication with instructors, time pressures resulting from multiple responsibilities, problems with course design, poor course materials, unclear expectations and guidelines, limited course availability, limited access to learning resources, and disinterest on the part of the university in resolving concerns. Among her recommendations, Potter included the need for universities to conduct periodic and regular studies of their distance learners, to develop and deliver effective support services for distance learners, and to properly prepare distance-course developers and instructors.

Additional research in the area of distance education by Carr, Fullerton, Severino and McHugh (1996) looked specifically at the barriers experienced by adult women learners in distance education programs employing self-directed academic modules. The

authors examined the barriers encountered by women in completing a distance nurse midwifery program. The main barriers cited by respondents included family and work responsibilities and financial barriers. Time parameters, failure of program to meet learning style, and illness or other life events were also listed as barriers.

2.2 Internet-based Delivery Perspective

Earlier research by Ross, Crane, and Robertson (1994) in computer-mediated distance education involved a study that looked at identifying access problems in a graduate online education course. The study specifically asked questions pertaining to the communication software used, problems encountered, support services accessed and suggestions for change. The findings of the study reported student problems with connectivity to the hub, slow text processing, screen freezing, and lack of essential information about use of the system. Students also listed problems encountered with using the conference software. Many of these problems centered on "non-existent, inadequate, or obsolete documentation about the systems" (Ross et al, para. 17). The authors noted that an underlying factor that may have added to the problems with the conference software was the lack of user understanding of the system. This lack of knowledge may have prevented them from finding their own solutions to the problems encountered. In addition to these challenges, students also cited problems with downloading and more in particular with uploading files. Even though the problems identified in this study are primarily of a technological nature, they are still considerable barriers that must be overcome to ensure equitable access for all users.

Wiesenberg and Hutton (1996) discussed their experiences in developing and teaching computer-mediated communication (CMC) based graduate courses. In addition to reflecting on their experiences as teachers, they also provided some perspectives on their students' experiences acquired through course evaluations, student-instructor discussions, and student journals. The challenges and barriers associated with web-based learning identified by the learners in this study included:

- concern about the perceived lack of interactive dialogue among students in the courses;
- frustration with numerous technical problems and the amount of time and effort needed to resolve these technical problems;
- amount of time involved with a CMC course in terms of keeping pace with readings and participating in online conversations;
- requirement to adopt a self-directed learning style;
- lack of human contact and learning to communicate without visual cues;
- formatting and grammar of submissions.

Wiesenberg and Hutton noted that the main differences between traditional teaching and online learning lies in the change towards a "more student-centered, collaborative, and egalitarian learning environment" (para. 38).

In similar early research on learner's perspectives in computer conferencing, Burge (1994) presented data collected from in-depth interviews with M.Ed. students in a web-based distance program. Burge defined computer conferencing (CC) as "a form of delayed-time, text-based messaging using special software" (para. 3). Part of the

information gathered in this study identified some of the strengths, weaknesses, and challenges of computer conferencing, which included: peer interaction, information quantity, discussion fragmentation, and time problems. Participants provided feedback on challenges encountered with learning to use CC. Some of these challenges are listed below:

- lack of visual and aural cues;
- difficulties encountered with working collaboratively using CC;
- absence of immediate feedback;
- difficulties associated with handling quantity of information;
- fragmented class discussions.

In the discussion of her findings, Burge (1994) concluded that the students might have been affected by a number of stressors in their attempt to participate in the computer conferencing environment. Burge (para. 55) identified these stressors as:

- requiring the use of cognition and affect management skills simultaneously;
- managing loads of information;
- deciding why, when and how to contribute;
- not getting timely useful peer messages;
- feeling out of sync with class discussion;
- fearing loss of valuable ideas and
- having to decide quickly whether to stay in cognitive synchronicity with the focus of the class discussion.

Burge concluded that similar studies are needed to further develop our understanding of how "learners behave strategically in CC contexts and perceive their tasks" (para. 63).

More recent research on online learning experiences and the barriers and challenges perceived by students was completed by Kochtanek and Hein (2000) who considered the evolution of a graduate level course from a face-to-face model to a web-based asynchronous learning environment. In this course transition, they identified a number of barriers that they argue need to be addressed in order to improve distributed learning environments. These included:

- newness of the concepts associated with distributed learning;
- limitations of asynchronous communications;
- time management challenges;
- technological barriers.

The authors concluded that both students and instructors lacked the skill and experience needed to create and sustain a quality, distributed learning environment.

In their 1999 case study of a Web-based distance education graduate course at a major US university, Hara and Kling examined students' difficulties in learning effectively in such a course, and how much, and in what ways students' frustrations in an online course can inhibit their learning. They found that students' frustrations resulted from three interrelated sources: minimal and not timely feedback from instructors, ambiguous instructions on the Web site via email, and technological problems. In their conclusions, Hara and Kling noted that "distance education has great potential for

providing rich environments for students; however, as history has taught us new technology is not a panacea. It has trade-offs" (para. 85).

Ann Bishop (2002) described her experience with web-based learning, and the problems and difficulties she encountered when enrolled in a web-based graduate course. Some of these challenges were technical beginning with the installation of the course browser. She also noted her difficulties with the discussion portion of the course and found participation in the discussions unpleasant. She found it took hours to review the numerous postings made by the more than 60 students in the course and was frustrated with the lack of connection she felt with the other students. She also expressed difficulty with the fact that postings were in view for the entire course and could be neither altered nor removed. Other difficulties she experienced with the discussion included: not knowing who was reading the postings (surveillance), the problems associated with trying to write something original, the need to write and proof postings carefully, delays between postings, and the inability to read body language.

Bishop (2002) noted that she found collaborative assignments to involve much more effort and stress, and she found them time consuming. She expressed challenges with time zones issues, and grammar difficulties with students from other countries. Another concern Bishop described was that of workload. She found that her web-based course was one and a half times more work than a face-to-face course. Bishop describes the difficulty she experienced in communicating this to course faculty.

In the document, *Developing Interactive Student Service for Distance Education Students* (School of Continuing Education, 2001), a needs assessment of 181 distance

students is outlined. Of the 181 students who participated in the study, 43% were enrolled in a traditional correspondence course; 22.7%, in a web-based course; and the remaining students experienced both types of delivery modes during the term.

In one segment of this needs assessment, student participants were asked to identify obstacles facing students while taking distance courses. Some of the obstacles identified included:

- time management, work problems;
- work/family commitments;
- web access problems;
- isolation;
- motivation;
- communication with professors;
- course material not received on time;
- large amounts of material to read.

60 percent of respondents identified combinations of time management, work related problems, and family commitments. The other obstacles were mentioned by much smaller number of students.

In their study involving online learners, Howland and Moore (2002) examined students' experiences and perceptions of Internet-based classes and their learning experiences within these courses. Their research revealed that self-management, self-reliance, and accurate expectations of learner responsibilities are important attributes for successful Internet-based learning experiences.

Howland and Moore (2002) noted "self-management, self-monitoring, and motivation appear to be even more essential for success in an online students who reported positive learning experiences recognized the need to "be more proactive and independent in learning" (p. 187). Some students who reported more negative learning experiences expressed that they felt "overwhelmed with the need to rely on themselves" (p. 187). They expressed the need for more structure and feedback from the instructor course than in a face-to-face classroom" (p.188). The discussion board was often guided by students and led to positive results for some learners. Other students disliked the discussion board activity and the need to post weekly for assessment purposes and the "irrelevant, seemingly meaningless comments" (p. 189) this produced. Howland and Moore also noted that some students found the absence of face-to-face contact with the instructor influenced their perceptions of the online course. This perceived lack of guidance led to lack of confidence among these students.

Participants in Howland and Moore's (2002) study expressed difficulties with the following: course content and activities, amount of instructional activities, adequate time to complete activities, technical problems associated with course access, and lack of experience with computers and Internet-based courses. Other problems included time commitments associated with an Internet-based course while juggling other responsibilities such as work and family.

In her research into online learning communities, Conrad (2002) explored learners' online experiences. She examined the experiences of seven mature adult learners enrolled in a university undergraduate outreach program delivered online using

WebCT™. Conrad concluded that even though "online community exists virtually, there are important differences between online classrooms and the rest of the Internet" (p. 8). The study's participants differed in their view as to who was responsible for initiating or creating the sense of community in an online course. Some put the responsibility on the instructors while other believed that everyone in the course was responsible. Conrad also discussed the difficulties these learners encountered while learning online. These included: balky technologies, broken connections, difficult group work, and absentee instructors. As students, they were required to spend money on better technology, on paper, and on attending face-to-face group meetings. Some students also noted that participation in online learning tested their organizational and time management skills.

2.3 Studies Specific to WebCT™

A study conducted by White (2000) of online distance courses offered at Grant MacEwan Community College in Edmonton, Alberta, examined the benefits and barriers from both faculty and student perspectives. This study was conducted under the Learn Online project. Under the Learn Online project, courses in the Health and Community Studies division were converted to web-based format using TopClass™ and WebCT™ courseware. The study considered three courses that were evaluated over one year. Students participating in the courses were surveyed as part of the study about their experiences in web-based learning. Students noted problems they found with the courses as well as advantages they saw to this style of delivery. White notes some of the problems encountered by the students:

- time-consuming downloading information;
- difficulty submitting assignments by email;
- frustration navigating through the course structure and inaccessible Web links;
- overwhelmed by quantity of information on the Web.

Freeman (2000) reports some of the findings of a study conducted at Ryerson University on the issue of WebCT™ support and student experiences using WebCT™. During the time of this study, WebCT™ was being used in a variety of ways at Ryerson; namely distance education courses, mixed mode courses, and also to augment face-to-face courses. One of the areas of the study focused on barriers students encountered in using WebCT™. Findings from this segment of the study included the following comments grouped under three categories:

Pedalogical Condsiderations:

- learner expectations not being met;
- lack of consistency in use of WebCT™, location of tools, posting of materials;
- lack of consistency in posting course material;
- lack of knowledge when postings will be made available;
- non-standardized course site design;
- unequal student computer and Internet access.

Managerial Considerations

- course information is usually late, misplaced, and not in proper order;
- partial or incomplete use of WebCT™ for content presentation;
- students require support to access WebCT™ and use the online tools for learning;

- confusion as to what is expected of students, no criteria set out for marks assigned for WebCT™ participation;
- no instruction or clear understanding around the criteria by which their participation is assessed in regard to use of collaborative tools.

Technical Considerations

- student login and password problems;
- system and network problems;
- user error and user lack of confidence;
- WebCT™ design problems;
- system/infrastructure issues.

It is anticipated that the findings generated by this study and presented in this thesis will add to the existing body of knowledge in the area of web-based learning and will allow a comparison of barriers and challenges between different groups of learners in different contexts of web-based learning. In addition to collecting data on barriers and challenges encountered by learners in the context of today's web-based environment, this study also attempts to make a comparison between identified barriers and challenges from earlier research and the findings and conclusions reached in this research. In the discussion of the findings, similarities between barriers and challenges of data collected in previous research and the data collected in this study are discussed. This comparison illustrates how this study complements the knowledge generated by previous research. In addition to adding to knowledge on web-based learners, this study also provides additional data to the pool of information regarding the barriers and challenges

encountered by web-based students when using WebCT™ as the e-learning delivery system.

2.4 Summary

This chapter provided an overview of past research conducted in the areas of distance learning, web-based learning, and the use of WebCT™ e-learning system in the delivery of web-based courses. The previous research presented here examined specifically barriers and challenges encountered by the learners as they participated in courses using a distance or web-based approach. Some of the common barriers noted in the literature included: instructor feedback issues, technical problems, access to support, lack of structure, workload issues, lack of interaction with fellow students, time management issues and issues associated with collaborative work.

The next chapter will provide an outline and explanation of the methodology used in this research study. The method of participation selection, data collection, and data analysis are presented in this chapter.

Chapter Three

Methodology

The methodology section outlines how the research was conducted and the data collected in this study. It reports on the participants, data collection techniques, phases of the study, the ethics procedures, and the data analysis.

The purpose of this study was to gain insight into the experiences and perspectives of adult learners enrolled in masters-level, web-based courses and to identify the barriers and challenges encountered by them. In order to accomplish this goal, a qualitative research paradigm was chosen in order to gain insight into the perspectives and experiences of the students. Berg (1995) views qualitative research as research that "seeks answers to questions by examining various social settings and the individuals who inhabit these settings" (p.7). In this case, the setting is that of a web-based learning environment.

The research involved a study that was conducted within the context of the Master of Education (Information Technology) (M.Ed. (IT)) program offered jointly by Memorial University, through the Faculty of Education, and the University College of Cape Breton, through the Institute of Education.

3.1 Participants

The participants for this study were adult learners enrolled in the M.Ed. (IT) program. This web-based program uses WebCT™ as the e-learning system for course

delivery. The only pre-requisite for those students interested in participating in this study was prior participation in at least one web-based course delivered via the WebCT™ platform. This pre-requisite was put in place to ensure that participants had prior experience using the features of the WebCT™ platform. In addition, the proposed study sample had to consist of web-based learners in order to be able to draw upon their prior experiences with web-based learning and their perceptions of web-based learning.

The total number of students who could potentially participate in the study was estimated to be between 75 and 100. This was based on numbers provided by the Faculty of Education, Memorial University. Potential participants were contacted through the Education Grad Society mailing list. This is an email-based listserv that has been set up by the Faculty of Education to communicate information to Memorial University graduate education students. An email was sent to graduate education students who had subscribed to this mailing list inviting them to participate in the study. The email also provided them with the researcher's email information. Those students who were interested in participating were directed to contact the researcher directly via email to indicate their interest. Students from all graduate, web-based education programs identified within the Faculty of Education were invited to participate in the study. The researcher attempted to select participants who were representative of the various programs identified within the Faculty of Education. However, the majority of students who responded to this call for participants were enrolled in the M.Ed. (IT) program. As a result, the researcher decided to limit the study to include only participants from this program. The study involved a total of 20 participants.

Once students had indicated to the researcher by email their interest in participating in the study, the researcher contacted them by email. This email (see Appendix 1) from the researcher provided interested students with additional information on the study, what they would be required to do as part of the study, and the degree of their involvement. Consent information was also provided within this email. In order to indicate their acceptance of the terms outlined in the consent information, the participants were asked to send a statement of their acceptance and willingness to participate in the study by way of a return email to the researcher. Once they had indicated their consent, participants were provided with information on how to access the study's WebCT™ shell and provided with a username and password. Participants were then directed to the instrument for the first phase of the study - the online discussion forum in the WebCT™ shell.

3.2 Data Collection and Phases of the Study

The data was collected entirely using asynchronous and synchronous digital technologies. This collection process reflected the web-based theme of the study. All aspects of the research - from inviting students to participate, confirming their consent, conducting the three phases of the data collection - were completed using these methods. This was accomplished using features of WebCT™ system and standard email.

The research involved three phases of data collection. Each phase employed a different technique and used data obtained in the preceding phase to inform the questions asked in the following phase. The first phase involved the entire group of 20 volunteers

participating in an online, asynchronous discussion forum conducted within WebCT™. The discussion adopted a focus group approach with moderation by the researcher.

The discussion took place over a period of approximately two weeks. Participants were very active in contributing during this phase of the study, and the discussion was very steady. The participants were aware of the nature of the study from information that had been sent to them from the researcher (see Appendix 1) and from the title of the study. The first question posed by the researcher served the purpose of initiating dialogue among the participants. The first question was as follows: How would you describe your experiences as a learner in web-based courses? From this starting point the discussion developed and grew with participants responding to this question and to comments presented by other participants. The online group discussion resulted in participants talking about not only their positive but also their negative experiences of web-based learning. The researcher observed the participants throughout the discussion stage. In addition, when required, the researcher added comments to stimulate the discussion, such as: "elaborate on what you mention as the missing element" and "how has this affected your experience as an online learner?". The discussion phase also allowed the researcher to draw out additional information from the participants on the identified topic.

The researcher began focusing the discussion more towards specific barriers and challenges during the second week of the discussion phase. This focus was accomplished by a presentation by the researcher of a summary of barriers and challenges identified by participants up to that point in the discussion. Participants were asked to comment on

this summary and to make any necessary changes or additions. This summary also served as a member check allowing participants to verify that the summary and extraction of the barriers and challenges was true to the content of their postings. Following the member checks, the discussion phase continued for approximately one more week.

The intent of the discussion was to collect broad data on the topic of barriers and challenges and to start generating ideas among the participants. The information gathered at this phase of the study was used to design the questions presented in the next phase - the online questionnaire.

The second phase of the data collection involved a questionnaire (see Appendix 2) containing open-ended questions that related to issues raised in the anonymous online discussion phase of the study. The intent of this second technique was to collect more specific and in-depth information on data collected during the first phase and to allow participants to further elaborate on barriers and challenges raised during the discussion phase. The questionnaire served as a second member check of the data collected during the discussion phase. It was administered using the survey tool feature located in WebCT™. Students who agreed to participate completed and submitted their responses online directly to the researcher. Nineteen students participated in this phase of the study.

The third phase of data collection involved in-depth questioning of those participants who had responded to the questionnaire. This in-depth probing functioned as an interview. Berg (1995) defines interviews as "conversations with purpose" (p. 29), with the purpose being to gather information. Seidman (1998) notes that an interest in understanding the experience of other people and the meaning of their experience is key

to interviewing. Seidman views interviewing in educational research as a "necessary, if not always completely sufficient" method of data collection (p. 5).

Eighteen of these semi-structured interviews were conducted entirely through the chat feature in WebCT™. One interview was conducted via email. From the results of the discussion and the survey, the researcher generated a list of interview questions (see Appendix 3). The interviews were conducted using this list as a guide, but additional questions may have been asked depending on the flow of the interview. This approach allowed the researcher the opportunity to discuss specific barriers and challenges more in depth with individual participants and to develop a stronger understanding of their perspectives on various topics.

In summary the phases of the study were as follows:

Phase 1: Asynchronous discussion in the online discussion forum that took place over a period of approximately two weeks and required approximately one hour of each participant's time. Member checks were also conducted through the discussion forum.

Phase 2: Online questionnaire that required approximately 30 minutes of each participant's time. Participants were encouraged to complete the questionnaire within a period of one week.

Phase 3: Chat-based interviews with individual students that took place over a period of three weeks and required approximately one to one and a half hours of each participant's time.

The data collection phase of the research; that is, the discussion, the questionnaire, and the interviews, took place during Fall 2002 and Winter 2003.

3.2.1 Study Timeline

The following outlines the timeline followed for contacting students, securing volunteers, and collecting data:

Week 1: M. Ed. students initially contacted through Education Grad Society mailing list by MUN Faculty of Education.

Week 2: Deadline for students interested in participating in study to contact the researcher via email.

Week 3: Participant volunteers directed to the WebCT™ URL to access the discussion.

Week 4: Phase 1 of study - Online discussion forum

Week 5: Online discussion forum continues and member checks conducted

Week 6: Phase 2 of study – Online questionnaire

Week 7, 8 & 9: Phase 3 of study – Chat-based interviews

3.3. Validity and Reliability

This research was designed using a triangulated approach. According to Marshall & Rossman (1989) a triangulated approach contributes to the validity and reliability of the research. Within the study, there were three phases of data collection identified. The data collected in each phase was used to guide and inform the data collection in the next phase. The data collected from this multi-method approach was used as a way to

corroborate and elaborate on the research topic (Marshall & Rossman). Once the data collection was complete, the researcher had three sets of data derived from the forum discussion, the questionnaire, and the interviews. The researcher then used both these data collected from these different sources and the categories and sub-categories derived from these sources to identify common themes within the research.

In order to ensure validity, data gathered in the first phase and the preliminary categories identified during the initial analysis of this phase were used as the basis for the questions presented in the second phase of the study, the questionnaire phase. The researcher then used data derived in the first two phases as the sources upon which to base the interview questions in the third phase and as a guide to allow this third phase to probe deeper and allow the further development of themes and overall analysis of the data.

Another method that was employed to support validity and reliability was the use of member checks (Colorado State University, 2002). Part way during the first phase of the data collection, study participants were asked to provide feedback on a summary of challenges identified by them during the discussion phase. This served as the first member check. In addition, the second phase of the study, the questionnaire, provided participants with the opportunity to comment on the final results of the discussion phase. Participants were asked to comment further on any issues listed in the nine categories provided on the basis of what was most important to them. This exercise served not only as the second stage of data collection but also as a second member check on the data.

Participants were given the opportunity to comment on the existing data and the chance to add any additional comments.

3.3.1 Ethical Considerations

Application was made to Memorial University's Interdisciplinary Committee of Ethics in Human Research (ICEHR) in order to conduct this study. Potential participants in the study were recruited from students enrolled in web-based M. Ed. (IT) courses using WebCT™ at Memorial during the Fall 2002 semester. Students interested in participating in the study were sent an email by the researcher that provided them with information and invited them to participate in the study (see Appendix 1). The information provided explained the purpose of the research, the methods that were to be used to conduct the research, the role of the participants, and the method used to keep the information secure (Tite, 2002). This email also contained consent information. Once they had viewed the study information and the consent information, and if students agreed to participate in the study, they were asked to forward a statement by email to the researcher indicating their consent. Once the researcher had received an email indicating their consent to participate, participants were provided with the information via email on how to access the study's WebCT™ shell and to begin participation in the discussion phase of the study.

In order to facilitate this study and to ensure participants' confidentiality, a special shell was set up in WebCT™ dedicated solely to the collection of data for this study. Only the researcher and the research supervisor had access to this shell. All materials

and data collected during the research were accessible only to the researcher. This material was used to author the final thesis, and after a period of eighteen months, will be destroyed.

3.4 Data Analysis

The first phase of data analysis involved analyzing the data collected during the online discussion phase of the study. This interim analysis during the first data collection phase "lets the fieldworker cycle back and forth between thinking about the existing data and generating strategies for collecting new – often better quality – data" (Miles & Huberman, 1984, p. 49). Miles and Huberman see the ideal model for data collection and analysis as one that "interweaves" them from the beginning. During the online group discussion member, checks were also performed. In the member check study, participants were asked to review a summary of the challenges identified to date and asked to provide feedback. Following the discussion phase, the data from the 45 pages of text were grouped and reduced into nine sections corresponding to the nine categories of challenges that emerged. These categories were then used to design the questions for the online questionnaire. Similarly, following the administration of the questionnaire, the second phase of data analysis occurred. An interim analysis was conducted of the 49 pages of data produced. This data was further reduced to six categories. These results were used to formulate the questions that were then used in the individual chat-based interviews.

Following the final phase of data collection, the researcher began the third and final stage of data analysis. Once all the data collected were examined a number of times and coded, keywords and phrases were identified by the researcher (Miles & Huberman, 1984). This coding of the data led to the generation of categories representative of all three sets of data. This categorization of data involved the placement of smaller, raw pieces of coded data into groups (Ibid.) as were identified in the initial phases of the analysis by the frequency in which they occurred and the importance that was assigned to them by the study participants. The words or phrases that occurred most often were placed in categories. Upon review of the categories, sub-categories began to emerge. Data was then organized under a structure of categories and subcategories (Ibid).

Throughout the stages of data collection, the researcher used the method of data analysis outlined by Miles and Huberman (1984). This initially involved coding of the data. "The purpose of this process of coding will be to organize the data in relation to the specific objectives of the study" (Aubel 1994, p. 46 as cited in Brann-Barrett, 2000). The researcher used this method outlined by Miles and Huberman as a guide while of coding the data and identifying key words in the data. Similar words and/or phrases that were mentioned by several participants were coded and grouped into categories. Throughout this process, particularly in the first and second stages of data collection, an attempt was made to note new or different ideas and to follow-up on these with participants in succeeding stages.

3.5 Summary

This chapter presented a description of the qualitative methodology used in the data collection phase of this research study. The research involved a study that was conducted within the context of the M.Ed. (IT) program offered jointly by Memorial University through the Faculty of Education and the University College of Cape Breton through the Institute of Education. The methodology presented in this chapter includes a description of the manner in which students were invited to participate in the study. The participants for this study were adult learners enrolled in the M.Ed (IT) program. Potential participants were contacted through the Education Grad Society mailing list and consented to participate via email. The study involved a total of 20 participants.

The three phases of data collection were conducted entirely with asynchronous and synchronous digital technologies, using features of the WebCT™ system and standard email. During the first phase of data collection, participants were asked to participate in an online discussion using the discussion forum feature in WebCT™. The purpose of the discussion was to encourage students to share their experiences as learners in graduate web-based courses and to discuss generally, as a group, the barriers or challenges they face/faced. The second phase of data collection involved participants responding to an online questionnaire administered using the survey feature of WebCT™. The questions posed were open-ended and related to issues raised in the anonymous online discussion phase of the study. The final phase of data collection involved interviews conducted using the chat feature in WebCT™. The interviews allowed the researcher the

opportunity to discuss specific barriers and challenges more in depth with individual participants and to develop a stronger understanding of their perspectives on the topic.

A number of methods were employed in order to ensure validity and reliability within the study. The first method was to design the study using a triangulated approach. Within the study, there were three phases of data collection identified, with the data collected in each phase being used to guide and inform the data collection in the next phase. Another method that was employed to support validity and reliability was the use of member checks (Colorado State University, 2002). Throughout the phases of the study, participants were asked to provide feedback on a summary of challenges identified by them during the various phases of data collection.

In terms of ethical considerations, application was made to Memorial University's Interdisciplinary Committee of Ethics in Human Research (ICEHR) in order to conduct this study. Participants were provided with information that explained the purpose of the research, the methods that were to be used to conduct the research, the role of the participants, the method used to maintain confidentiality, and consent information. Participants were required to indicate their consent and acceptance of the terms by email. In order to facilitate this study and to ensure participant confidentiality, a special shell was set up in WebCT™ dedicated solely to the collection of data for this study. Only the researcher and the research supervisor had access to this shell.

Finally, the methods used to analyse the data were described. This involved several stages of analysis. The first stage of analysis, referred to as interim analysis, took place following the conclusion of the discussion and questionnaire phases of data collection.

The interim analysis of the discussion phase led to the development of categories. Following data collection, during the questionnaire phase, further analysis reduced and refined this list of categories. The final phase of analysis took place following the interview phase of data collection. At this stage, all of the data collected were examined a number of times and coded. This coding led to the generation of categories and subsequent sub-categories representative of all three sets of data.

The next chapter, Chapter Four, will include a presentation of the findings from this analysis. The findings will be presented by means of the categories and sub-categories that emerged from the analysis stage.

Chapter Four

Presentation of the Findings

The purpose of this chapter is to present a summary of the findings obtained through the processes of data collection and analysis. The findings presented in this chapter represent a synthesis of participants' perspectives as they were communicated in the study through the online discussion, questionnaire, and interviews. The previous chapter outlined the process of data analysis. Following the final stage of data collection, the entire set of data collected from all three phases was re-examined as a whole. This analysis allowed the researcher to group the data into categories based on keywords. Subsequent analysis of the categories led to the creation of sub-categories. The data were then synthesized according to a structure of categories and subcategories. The findings derived from this approach to data analysis are presented according to five categories presented here, in no particular hierarchal order:

- Issues in the Use of a Discussion Forum
- Learning to Learn Online
- Involvement/Role of Instructor
- Need for Support
- Lack of Social Interaction

Synthesis and analysis of the 155 pages of text representing the data obtained in the three stages of the study - discussion, questionnaire, and interviews - led to the development of subcategories for each of six main categories. These are as follows:

Table 4.1 Subcategories of Categories

Issues in the Use of a Discussion Forum	**Learning to Learn Online**	**Involvement/Role of Instructor**	**Need for Support**	**Lack of Social Interaction**
Student Experiences in Text-based Asynchronous Communication	Technical Challenges	Feedback from Instructor	Support for Students	Communicating Online
Posting Demands	Demands on Learner	Interaction with Instructor	Support from Institutions	Interaction Online
	Web-based Group Work	Instructor Technology and Web-based Teaching Skills		

The sub-category titles were chosen on the basis of their ability to be representative of as many types of statements as possible within the sub-category. For example, the sub-category *Interaction Online* groups statements in which the following words and related words appear: *communication, explanation, information, involvement, role, facilitate, directions,* and *presence*. The titles selected for the sub-categories were not the only ones that have could have been chosen. Other titles that would also have been representative could have been used. For example, instead of the using the title *Feedback,* the word "response" could have been used. The sub-categories are not meant to be exclusive. However, the sub-categories were included in order to represent the various ways in which participants shared their experiences. In addition to the synthesis is a presentation of some of the actual quotes from the discussion, questionnaire and interviews. These quotes are presented to provide direct insight into participants' perspectives on the challenges and barriers they encountered as web-based learners. The

study involved both male and female participants. In order to not compromise the confidentiality of participants, a decision was made to adopt the pronoun "he" when referring to the participants in the presentation of the findings. In addition, for purposes of confidentiality, all reference to professors was made using the pronouns "he" or "his". The decision to adopt such an approach was based on the proposed scope of this study and the fact that it did not allow room for comparison between the experiences of male and female participants.

In the following sections of this chapter, one category and each of its subcategories will be presented at a time.

4.1 Issues in the Use of a Discussion Forum

The challenges and barriers associated with the use of the discussion forum articulated by the study's participants were grouped into two sub-categories. These included: *Student Experiences in Text-based Asynchronous Communication* and *Posting Demands.* The category *Issues in the Use of a Discussion Forum* groups together those statements relating to the perception participants articulated associated to barriers and challenges they encountered when using the discussion forum.

4.1.1 Student Experiences in Text-based Asynchronous Communication

The first sub-category in the category *Issues in the Use of a Discussion Forum* is entitled *Student Experiences in Text-based Asynchronous Communication.* The content of this sub-category is synthesized below:

Table 4.2 Synthesis of the sub-category: Student Experiences in Text-based Asynchronous Communication

Student Experiences in Text-based Asynchronous Communication	
Domination or monopolization of forum by small number of students, discourages participation by others	Misinterpretation of postings and no opportunity to clarify
Exclusion from the conversation generates feelings of being an outsider	Absence of facial expression and non-verbal cues
Lack of response to postings	Tone/language of a response could be taken as it was not intended
Presence of student cliques or groups in the discussion forum impacts on discussion and responses to postings	Level of the discussion intimidating
Feelings of apprehension and intimidation when posting	Difficult to discern the flavour of a reply
Time consuming trying to get points across	Lack of confidence when posting. Felt timid and uncomfortable
Need for "code of conduct" for students to follow	Need for students to be aware of posting etiquette
Need for students to take responsibility for their actions in the forum	Frustrating when rude comments are made in the discussion
Student lack of experience in posting to forum and features of forum	People using the online format tend to be more assertive
Very general comments that do not add a lot of depth or new knowledge to the topic are frustrating	Discussion forum required a different set of communication skills
Feeling inadequate when postings go unanswered or responded to in a negative way	Text-only communication can cause major communication problems
Found variation in quality of posts to be frustrating	Frustrating when someone has already said what you were going to say
Unsure of answers if no one responded	Hard to post an idea and have it on forum for detailed scrutiny
Miss non-verbal communication	Found forum to be a forced conversation
Scrutinizing over every word posted	Lack of spontaneity in discussion forum
Intimidated by the very knowledgeable or very bold students	Did not find forum served a valuable purpose
Began the Masters very intimidated by the forums	

The sub-category *Student Experiences in Text-based Asynchronous Communication* groups those statements containing keywords including: *responses, responsibility, inadequate, confidence, misinterpretation, exclusion, intimidating, misunderstood,* and *scrutinizing. Student Experiences in Text-based Asynchronous Communication* was chosen as the title for the sub-category because it best represented the relationship between these keywords and spoke to the barriers and challenges that participants perceived they encountered when using the discussion forum. The participants expressed various challenges they experienced through their participation in course discussion forums. Several participants expressed dissatisfaction resulting from the domination of the discussion forum by a small group of students: "I think the forum can become very frustrating when other students are dominating the discussion or making postings daily". Participants shared their perception of how this domination impacted on their participation in the discussion. Some of these perceptions included feeling "very alone", the "feelings of being an outsider", feeling "inadequate when their postings were unanswered or responded to in a negative fashion" and feeling "discouraged from participating when others exclude them from the conversation". This domination in the discussion forum, at times, resulted in perceived exclusion of other students. One participant found this exclusion impacted on his participation: "It is hard to discuss when nobody responds to your posts or emails". Another participant expressed frustration with their being excluded from the discussion: "Usually it is the same group of students who have these discussions throughout the course and it ends up making the rest of us seem inadequate and/or not involved and this can be frustrating". In addition, one participant

also raised the concern regarding the perception of rude comments and assertive behavior, as illustrated in the following quote:

> It is very difficult to determine the intended message that is being sent by the teacher and other classmates. I have experienced what I have perceived as rude comments and have witnessed classmates getting rudeness projected towards them and I find it frustrating. I think that people use the online format to be more assertive than they would be in person.

In addition to the feelings of exclusion expressed by some participants, others, particularly those who had been away from learning for a number of years, expressed concerns about being "VERY intimidated" by the discussion and the level of topics. This intimidation was expressed in comments related to others "talking over your head", or of not having "the right terminology". One participant remarked that "negative comments or students not commenting on yours at all while commenting on several others" led to a sense of exclusion, while another participant commented: "if they did not respond to my posting, then it must have been a dumb thought". One participant also shared his reactions of becoming "nervous and jittery" when he posted something, and no one responded. This perceived exclusion also led to a sense of "being inadequate when [my] postings were unanswered or responded to in a negative fashion".

The opportunity for misinterpretation was also a common concern among participants. Some expressed their frustration at being misinterpreted in the forum due to the text-only medium. They commented that it was very difficult, at times, to "discern the flavor of a reply", "read into responses" and avoid taking "a comment the wrong way". One could easily "misinterpret" another's meaning as one participant described: "The tone and language of a response could be taken as it was not intended". Another

participant remarked: "In text-only communication, too much is left to assumption, which can cause major communication problems because of misperceptions". Another participant commented on how interpretation can be a problem in the discussion forum medium:

> This is an impersonal medium. Interpretation becomes a real issue, and I have had first hand experience with that. E-mail is left to the eyes and brain of the reader to decipher what is being said or implied. If you are in a room, you read the emotion, you sense the confrontation, or get the joke. It is not always possible to read what is being given to you.

Participants also expressed the following aggravation resulting from clarification issues and being misunderstood in the forum: "I find that there are so many chances to be misinterpreted in the forum and you don't have the immediate opportunity to clarify". This matter of clarification was raised when comparing online learning with traditional learning: "In the classroom, you could take time to clarify or have students say they don't understand. Online you are guessing. Online, it is rare that you go in and clarify although it happens".

The lack of non-verbal cues can present a challenge in a discussion forum, as one participant articulated: "Not having postings responded to or, even worse, having someone completely contradict what you were saying can sometimes be difficult when not accompanied by nonverbal cues". Another participant found the medium impacted on his ability to communicate. He stated, "In text-only communication too much is left to assumption, which can cause major communication problems because of misinterpretation". The "lack of spontaneity" was an issue for another participant, and

the requirement by the professor "to post and use references" did not make him "feel compelld [*sic*] to just roll with the conversation and offer personal experiences".

When asked to comment on their early experiences posting to the discussion forum, one participant shared these experiences: "It was stressful until I learned how to move around and to post comments and go back to other comments". Another participant responded with more emotion: " HORRIBLE!!! At first I was very timid; I took comments the wrong way". Feelings of intimidation and lack of confidence were also commonly expressed by participants:

> My early experiences were very frustrating, I felt intimidated and very unsure of my answers if no one responded to me. I feel better about it now but when I began I found it hard to post an idea and have it on a forum for detailed scrutiny.

Another participant shared these remarks: "The early times when I posted I would be intimidated by the very knowledgeable or the very bold and would make my submission short and sweet".

4.1.2 Posting Demands

The second sub-category in the category *Issues in the Use of a Discussion Forum* is the entitled *Posting Demands*. The content of the sub-category is synthesized below:

Table 4.3 Synthesis of sub-category: Posting Demands

Posting Demands	
Posting to forum used by professor as measurement method for marking purposes	Required to respond to certain number of responses and questions waste of time
Posting for the sake of posting to meet class mark requirements	Feelings of pressure to make more comments to keep up
Required to research every term used in discussion	Large number of postings overwhelming and difficult to keep up with
Each visit and response measured and counted in final marks	Overwhelmed trying to answer every postings

Feeling pressured to keep the number of posts up for grading purpose	Experienced feelings of slipping behind
Difficult to keep up with the large number of forum postings	Lack of posting criteria
Time consuming, difficult and discouraging trying to read long posting	Very difficult to stay on top of the forum and other requirements of the course
Feelings of being inadequate and/or not involved when unable to keep up with ongoing discussions	Number of postings difficult to manage as course progresses
Time consuming to respond thoughtfully and meaningfully to posts	Felt pressure to post something everyday
Feelings of being forced to respond challenging	Professor requires extensive posting
Requirement to include references with all postings – not an open discussion	Forums that require a particular number of postings per student tend to be incredibly dull

The sub-category *Posting Demands* groups those statements containing keywords including: *forced, inadequate, time, overwhelming, pressured,* and *measurement. Posting Demands* was chosen as the title for the sub-category because it best represented the relationship between these keywords and spoke to the barriers and challenges experienced by participants when posting to the discussion forum. Participants were very vocal in expressing their perceptions of challenges and barriers related to posting. One overriding issue expressed was that of forced postings to the forum for the purpose of marks and the accompanying pressure to post. Participants found "little value in forced responses" and questioned the purpose of such postings, finding that such forums "tend to be incredibly dull". Another student found the issue of being required to post frustrating:

> I found the forum can become very frustrating when you are required to respond to a certain number of responses and questions. I find this can be a waste of time when you are merely answering for the sake of meeting the quota.

The merit of the discussion forum was questioned when "each visit and each response or posting was measured and counted in the final mark". Another participant remarked: "I

would like to see the forum as more of a learning environment than as another opportunity to grab points".

Participants also articulated the challenges encountered in trying to keep up with the quantity of posts in the discussion forum and the discouragement they felt "from trying to read them all" when presented with a forum with "hundreds of postings". The usefulness of such a large number of postings was also questioned: "There were also a great many postings which took a long time to read and added little to our understanding". One participant commented: "I find at times the volume of postings is difficult to keep up with. Along with other course demands the students also had to read and respond to forum postings". Another remarked how "... it is very frustrating and time consuming to read all the comments and then try and keep up with replies, etc". One participant had the experience with some people contributing "much more than I would imagine was expected and this led [to] too much work and more time needed". "The forum can be terribly time consuming" another participant remarked. He also commented:

> I have spent more time in my last course on the forum than I have doing my assignments. The volume of postings and the expectations of the teacher make the forum, although not worth much in point value, very important.

Participants described postings not only as numerous but also as long, "essay length postings". One participant explained how "In one course, individuals were making daily postings of in excess of 800 words. It became difficult to stay on top of the forum and other requirements of the course". This individual went on to suggest that "there needs to be criteria established for the use of a forum...such as maximum size posting". In addition to the time involved in reading long postings, another participant commented

that "lengthy postings" did not "inspire me to contribute my ideas". This participant then went on to say, "I end up posting for the sake of posting with a view to the class mark and not to the final learning result". The quantity versus quality issue was also raised by another participant: "I think one of the big problems is keeping up with the large number of postings on some discussion forums. Many students seem to be more concerned about the quantity of their postings than the quality".

An additional issue included in the sub-category of *Posting Demands* is the pressure to post to the forum in order to keep up with the ongoing discussion. One participant shared his experiences in the following excerpt:

> I felt that I was contributing just fine, until I would check the site again after and see some people made numerous contributions, and some went on and on and then it took so much time to read them all, catch up and also I felt pressured to make more comments, it was like a cycle.

Another participant expressed concerns about "the pressure to post something daily" in addition to "readings, assignments, etc". The pressure to post, accompanied by a perceived pressure to keep up was noted by a participant, as follows: "I often felt like others were spending ALOT [*sic*] of time on the computer, making comments etc, time that I did not have, and thus I often felt like I was slipping behind". This same participant also observed in reference to keeping up with the discussion and the demands of posting that it is "frustrating when someone has already said what you were going to say".

4.2 Learning to Learn Online

The challenges and barriers articulated by the participants relating to learning to learn online are grouped into three sub-categories: *Technical Challenges, Demands on*

Learner, and *Web-based Group Work.* The category *Learning to Learn Online* groups together those statements that are related to the perception participants held in terms of their experiences in learning to learn online.

4.2.1 Technical Challenges

The first sub-category in the category *Learning to Learn Online* is entitled *Technical Challenges.* The content of this sub-category is synthesized below:

Table 4.4 Synthesis of Sub-Category: Technical Challenges

Technical Challenges	
Inability to flip back and forth between message composition and previously posted messages	Need for flexibility in web-based courses due to dependence on technology and telecommunications
Student lack of knowledge of the interface	No way to highlight importance of messages in the discussion forum
Lack of flexibility with WebCT™ as compared to other interfaces	Different online formats for different courses are confusing and frustrating
Lack of functionality with WebCT™ system	No way to "select all" when compiling discussions
Inability to change subject line in responses in discussion forum	Students get bogged down with the technology when using web-based interface
Inability to edit and/or delete messages after posting	Level of connectivity can impact on chat experiences
Threading system in the discussion can be confusing	Chat interface not well suited to slower lines
Moving around the messages is awkward	Frustrations with chat features
Use of different interfaces by institutions frustrating	Not knowing how to get into chat or unable to access chat
Experienced delays with inaccessible websites	Problems accessing server and course website
Experienced power outages and lost internet access	Low-level of technical skills among students
Lack of experience when expected to be able to use various software	Varying experience and comfort level among students with particular communication tools
Have to call for help when it comes to technical problems	Requirement to be competent in technologies other than those described in pre-requisite

Unfamiliarity with how to use online library	Students had not done the technical prerequisite for the program
Unfamiliarity with features of web-based interface	Lack of typing skills

The sub-category *Technical Challenges* groups those statements containing keywords including: *flexibility, confusing, functionality, chat, access, connectivity,* and *interface. Technical Challenges* was chosen as the title for the sub-category because it best represented the relationship between these keywords and spoke to the technical barriers and challenges that participants perceived they encountered when learning online and using the features of web-based e-learning systems. All participants had experience using the WebCT™ as the e-learning system in their web-based courses. One participant commented on an issue he had with the functionality of the discussion forum in this system:

> If our WebCT discussion forum had the functionality to change the subject line in responses (like this forum does), that alone would make a huge difference. Our version also doesn't have the ability to view a thread in one window like this one. Maybe these are examples of "small" changes in technology that seem to really improve online communication.

Another participant remarked on "design quirks" in the WebCT™ discussion forum that annoyed him:

> The inability to flip back and read through discussion postings while composing a message, and the way it returns you to the top of the listings when you click to expand a thread, so you have to search through the list of postings to find where you were.

This issue was echoed in another participant's comments: "Posting to the forum can often require looking are [*sic*] more than one previous posting. So it would be nice to be able to review previous postings instead of composing messages in Word". As one

participant articulated the "inability to flip back and read through discussion postings while composing a message was a real annoyance and time waster". Another participant shared his frustration with this same issue: "I have frustration when I want to expand several threads while keeping them thraded [*sic*]. You have to click on each one, wait for it to expand and then you are put at the top again". Another participant commented, "Moving around among the messages is awkward". He also commented on the difficulty he experienced in trying to re-read messages. He found that even if he did remember "who wrote it [the message]" and "what the topic was" he had to conduct a search for the message. He found this "a roundabout way to do something that should be very easy". The need to conduct a search for messages was echoed by another participant who commented on the threading system in WebCT™:

> The threading system doesn't seem to work in a way that I find really intuitive; if I want to check back on something, I have to search for it instead of just working my way backwards through the thread.

The inability to change or edit messages in the discussion forum once they are posted was "frustrating and disconcerting at times" as one participant remarked, "especially after discovering a post contained and [*sic*] error":

> I had to go back and do the thing all over again or try to: A. explain what I said that was wrong; B. say what I meant to say; C. explain my argument again; D. make the correction before someone else (like the prof) found it E. make the correction before someone responded to it and confused the issue even more.

On the same issue of being unable to edit a posting due to the functionality of the discussion forum a participant commented: "I've fallen victim to not being able to change a posting mistake that made me feel like a 'fool' throughout the entire course". Another participant shared his frustration with the inability to "add to the comment" he

had posted or to be able to "revise something". The only way he found a student was able to do this was "to reply to your own posting. However, this breaks your message up". This frustration in having to post another message was shared by another participant who commented:

> I would like to be able to edit or delete mesages [*sic*] after posting. Often I think of something I should have added, but because I would have to post a nother [*sic*] message, I don't bother. I figure there are already far too many to sift through, why add another?

A participant also articulated his frustrations with the inability "to highlight" a message's "importance" in the discussion forum. As a result, "important messages can get buried".

Frustration and confusion with the use of different interfaces by the universities involved in the delivery of the program was commented on by a participant in the following excerpt:

> It was also sometimes confusing because the University of Cape Breton used a different interface than MUN. I like theirs better, because a splash page would come up when you entered to give you important information. Also Web CT doesn't seem to have the same flexibility of e-education or whatever it was. There you could edit and delete messages after you posted them. I haven't figured out how to do that on WebCT yet.

In the following quote, a participant shared his experience with the use of different web-based e-learning systems and his frustration with WebCT™:

> Since I started the program I've used 3 different web-based learning systems. I started with SiteScape, UCCB used another one who's [*sic*] name escapes me, and now WebCT. I'm getting used to WebCT, but there could be some changes They've adjusted our view so that we can see and quote a person's original message, but if you try to reference more than one person's posting, you lose your typing.

Feedback from participants on WebCT™ as a delivery platform was mixed, ranging from one participant who found it "was somewhat inflexible", to another who commented that

the "WebCT message board sucks" and finally another participant who remarked, "There should be only one interface used by all and without some radical revamping, it should not be WebCT".

In addition to challenges and barriers encountered in the general use of WebCT™ and other delivery platforms and the functionality of the discussion forum, participants also remarked on frustrations they came across when using the chat feature in web-based delivery platforms. In the following comment a participant shares his frustration regarding chat:

> The technology has a long way to go before chat will come close to replacing telephone conversation (and may never replace face-to-face). The only plus I can see is the "instant transcript" that it creates. Plus... I'm taking this degree through distance ed. because I didn't want to be tied down to scheduled dates and times!!!

Another participant made the following comments about his experience using the chat feature in the Jones *e*-education™ learning platform: "The chat sessions had a frequency of dropping out or not allowing you in. If you had Jones open, a chat session going and tried to run something else like a word program, the system would freeze up". In addition, the potential existed for participants to encounter difficulties with the technology in terms of connectivity when trying to participate in chat sessions. One participant made this comment regarding this issue: "Trying to carry on a discussion in a chat room where the interface was not well suited to slower lines. I have DSL but many may be on slower frame relay, or cable".

Another area that was the source of frustrations for participants occurred while attempting to access the course websites and the course delivery platform. This was articulated by a participant in the following excerpt: "There have been times when I have

not been able to access the web site for days at a time. This is very frustrating for anyone who is trying to keep ahead with their reading and assignments". Another participant made the following remarks regarding course website access problems:

> Course website access problems is [*sic*] a big frustration when you are trying to complete tasks within time lines. With an online course I feel guilty printing off every interesting idea, one power of the course is that I can access the information as long as I have web access. This portability is dramatically effected [*sic*] when the site is not accessible which can hamper progress on the assignments as well as my contribution to the forum. It is understandable to have the odd net interuption [*sic*] but when school server regularly has access issues it is very frustrating.

One participant found it "very frustrating" when he "encountered technological issues such as power outages and failed internet connections". Another participant also offered the following similar comments: "I have had some bad luck in this area, lots of power outages and lost internet access. What am I going to do in the winter!!!???". This dependence on technology can lead to problems - particularly in meeting deadlines as one participant remarked:

> Having a structure and a good timeline is essential for any course but online courses must have some flexibility due to the dependence on technology and telecomunications [*sic*]- which in the case of synchronous meetings or autocratic deadlines - can be a problem.

Being "typing challenged" was identified as a barrier to synchronous communication or chat and a limitation among learners. One participant observed the following: "Classmates who are typing challenged have extreme difficulty with real time chat". He noted that he had a teammate from another province who would call him on assignments because "he was not a typer". Other participants commented that slow typers are "often left out" and "those who can't type [become] buried" and that "there were times when the slow typer could not say what he or she wanted to [and were only

able to have] part of their voice heard". One individual concluded that chat was "certainly not the place for the non-typer". In this regard, two participants made these reflections:

> I am an individual that has relatively fast typing skills (Using 5-6 fingers), however, prior to getting to the competency level that I am at now, it was a big challenge to deal with this type of situation. One can easily get behind and the slow pace of typing can inhibit the flow of thought.
>
> Well I am not the fastest typist in the world, but some folks are twice as slow and it takes a lonfg [*sic*] toime [*sic*] to have a group discussion at the best of times let alone accounting for this.

In order to participate in the M.Ed (IT) students must meet prerequisite requirements in terms of technological skills. One participant shared the following comments and related challenges he experienced in regards to these requirements:

> My first course was very stressful for several reasons ...I had not done the prerequisite for the course. I registered for the only course offered that winter semester. I did not realize there was a prerequisite until after the course finished. I felt if there was a prerequisite, the university would not allow me to register, but not so.

Another individual articulated his feelings on the issue of students and technical skills in the following excerpt:

> I think that the student has to be prepared technically. While instructors may not use the technology to its fullest, I think the student is expected to. And this can vary from instructor to instructor. So you have to be prepared.

Not all participants in the program shared the same level of technical skills and this presented "more of a problem" than anticipated. One participant shared his experiences: "[It is] difficult to know all the programs we are expected to use...I was not very tech savy [*sic*] when I started the program". The lack of technical skills could lead to frustrations and challenges for participants as seen in the following excerpt:

> I was very angry with the professor's comments at times. I felt if he only knew where I began with my computer skills. I have learned so much but when it comes to technical problems I have to call for help.

Another participant made this observation regarding students' technical ability:

> I have been in classes more than one time where students express frustration about not being able to get into chat, not knowing how to remove cookies to get into groups ect. [*sic*]..small things that cause them to log off and do somethig [*sic*] else. They get bogged down in technology rather than material.

The lack of technical knowledge can have an adverse affect on a student's experience as one participant remarked:

> The technical competencies also play a part. If the person using this interface is not moderately well versed in using mail, discussions, etc, then there is an immediate learning curve. This slows their progress for the first courses as they spend more time trying to understand how to work the sopftware [*sic*] then [*sic*] actually utilizing the software for learning.

In terms of prerequisites, participants have experienced problems with students who "claim to have the prerequisite" and "run into problems when they have to actually have to demonstrate their competence". One participant made the following comment on the need to know other skills besides those outlined in the prerequisite: "I do agree that the program demands that you be competent in technologies other than those mentioned i.e. creating a Web page or a presentation". Student's being required to be competent in other areas of technologies besides those mentioned in the prerequisite was not an isolated incident as seen in the following excerpt:

> We were expected to make a slide show and put it on a web page. I was weak in these areas. These were not sited [*sic*] as compulsory to take the masters program. I assumed I would learn as I go. Not so. I was expected to know these. That was O.K. to the extent that I had to find a way to learn these and fast, which I did. But I was wiped. Now, I view it as 'one of life's experiences'. Yes, it was frustrating."

Another participant shared this experience when required to use software unfamiliar to him:

> I'm not a very experienced Inspiration user. So the two courses that I've been involved in that require the use of Inspiration have been a challenge for me. I didn't get very much out of the Inspiration activities because my time was spent learning how to use the program.

4.2.2 Demands on Learner

The second sub-category in the category *Learning to Learn Online* is *Demands on Learner*. The content of this sub-category is synthesized below:

Table 4.5 Synthesis of Sub-Category: Demands on Learner

Demands on Learner	
Onus on learner to research topics and prepare for chats	Experienced frustration determining what to do
Need for students to be resourceful, take initiative, be an independent and responsible learner	Online courses require more time than traditional courses
Change in traditional students' role - becomes part facilitator, instructor and IT technician	Web-based learning requires discipline in time management
Higher level of thinking required when posting	Not used to nature of web-based learning
Learner has no idea if on track	Must have patience and be organized as a learner
Need for students to have strong organizational skills	Student habits and thinking have to adapt to online environment
Challenges of online course work load and time commitment	Very hard to get a feel for the subjects under study
Felt had to think "deeper" to keep up with discussions	Found it difficult not having scheduled classes and guidelines
Required to be active and efficient learners, dedicated and committed	Have to be very clear about what you mean
Students must be flexible and able to work with new ideas	Other students dependent on your participation
Felt more responsible and pressured as a learner	Students must be prepared and keep up with class readings and postings

Onus on learner to show up and get involved	Students expected to participate and contribute to make learning more collaborative
Conscious of saying something intellectual when posting	Lack of face-to-face has eliminated the help of verbal skills
Learner driving force behind the success of the courses	Students must be able to formulate and ask questions well in order to participate
Had to read more into topic in order to keep up with discussions	Must learn to deal with negative or no response to posts
Must learn to adapt to impersonal relationship with instructor	Learning style not conducive to web-based learning
Long absence from learning	Unfamiliarity with Master's level learning expectations
Getting back into the mindset of a student after long absence	Unfamiliarity with nature of web-based learning

The sub-category of *Demands on Learner* groups those statements containing keywords including: *responsibilities*, *time*, *discipline*, *thinking, ability*, and *participation*. *Demands on Learner* was chosen as the title for this sub-category because it expressed the relationship between these keywords, and it also expressed the demands the participants perceived they encountered and experienced as web-based learners. Participants referred to how learners in web-based courses or programs have additional responsibilities as compared to students in traditional classrooms. As one participant noted, "Web learners need to be resourceful and able to learn on their own". Not all students felt they were equipped to "learn on their own". One participant shared how he felt in such a situation:

> When something was required of me in which I knew nothing about, I experienced stress as I had to learn things on my own, not being in a classroom you feel like the only one who is having problems and you are more reluctant to ask for help.

Another participant commented how "more responsibilities fall on the learner to cover the material" because in "online learning the learners have less direct contact with the

instructor and other classmates". This same participant claimed, "Chat or online forums [did not] fill this gap". Another participant shared his approach to keeping up with web-based courses, "I find it is extremely important to check in frequently and keep up with the course. I made that mistake at first - it's very easy to do, especially with the stresses of life outside the course".

In addition to more responsibilities, some participants shared the perception that a new role was emerging for them as a student in the web-based learning environment. No longer was the student a "passive learner" as in a traditional classroom but now was required to play other roles. One participant shared the following conclusions: "there's no doubt you have to be a more responsible person to complete a distance program. You don't have others to rescue you - you're pretty well on your own". Another participant identified a new role for the online student as "not just a student but part facilitator, instructor and IT technician". This idea of students as facilitators is expanded on in the following quote:

> A participant in an online course tends to support others because you depend on feedback and the exchange of ideas...Online some students tend to gravitate towards a facilitation role, supplementing the guidance of the instructor. I've done that somewhat...asking people to expand on an idea, or encouraged someone's posting because nobody else was.

Another participant echoed this view: "I do generally feel that there is a different role and responsibility ...there is a need to be more than a passive seat filler. Students are expected to be on task and participate".

This new role and responsibility to participate impacts not only on the individual student but also on all students in the course as one participant commented the following:

"Other students are dependent on your participation to construct their knowledge through discussions and scholarly debate". Another participant noted that there was "more responsibility on the part of the students to contribute" to make the learning experience "more collaborative and richer through contributing". With this emergence of a new role for the student, there is also a perceived new role for the instructors: "The student becomes the knowledge creator, with the instructor taking the back seat". The students now determine the "direction of the study" and become the "driving force behind the success of the courses".

According to some participants, online learners require special skills as illustrated in the following quote: "I think that it is VERY important to be the kind of person who can formulate and ask questions well in this program. You need to be able to figure out what you need. Independent learning to the max". Another individual claimed "[I had to] become much more self directed in my learning approach" in an online environment. Web-based learners must be "prepared to think for themselves and to discipline themselves to get assignments and projects and discussion responses in on time". Another participant shared a similar view, "You have to be more dedicated... You certainly have to take more initiative", while another participant remarked: "I think that you need to be able to manage your own education. If you are not independent you are in the wrong place".

These demands of web-based learning can affect a learner's ability or desire to participate or to continue in a program as illustrated by the following quote: "The first term I very nearly quit. I was only doing one course, but between the instructor and the

mode of delivery, and my lack of any teaching experience, I just couldn't get the hang of it". Another participant commented about his experience, "Mine has been positive at times but there have also been some very trying times...times that have left me frustrated and feleing [*sic*] that I did noyt [*sic*] want to continue".

Other participants also offered comments about the amount of time required for web-based learning. One individual who had previously completed a traditional graduate program remarked that "Online course [*sic*] are very demanding! Much more than a face to face graduate level courses [*sic*]". Another participant identified time as a challenge in his experiences as a web-based learner:

> The amount of time is definitely the most important issue to me. Although I love the idea of 'anytime, anywhere' learning, it takes a great deal more time on my part. For some students, discussion forums are very easy and they can communicate instantaneously. For me, the length of time it takes for me to read, ponder, research and post a response is so time consuming.

Another participant remarked that the "time aspect" was his "biggest concern". He explained: "[I] spent way too many hours on this program to the point that I regret it at times instead of enjoying learning, which I normally do". When comparing online courses to face-to-face graduate level courses, one participant had this to say: "Definitely more time consuming for me. Everything I do requires a great deal of time. Postings and preparation for chat requires research, formulation of thoughts etc. whereas in a traditional environment that wouldn't be there". The additional time it took to learn online was seen as "another barrier ...what with work and family". The perception that learning online took much more time than in a traditional classroom was expressed in the following comment: "In a three hour class you accomplish a lot in that amount of time. I

have seen me be online for two hours and accomplish very little". One participant described how he would "be lost" if he "didn't spend time" on his web-course because of the sense that he "had to do it [him]self" and "felt more responsible".

Several participants also noted the need to think at a "higher level" in web-based courses as compared to face-to-face courses and the pressure that accompanied this responsibility:

> I would say the thinking at a higher level is a big responsibility in web-based learning. For me, posting a 100 or 200 word posting to the forum requires a great deal of my time to research, formulate thoughts and opinion[s] and use practical examples. This wouldn't be so bad except that I feel the pressure to post something daily coupled with my readings, assignments etc. perhaps other people do not put that sort of pressure on themselves but I do.

The fact that thoughts and ideas were in print was a factor for one participant, "It was a big challenge - not the technical aspect but the content of postings. It really made you think at a higher level because your words were in print and saved and I was conscious of saying something intellectual".

A prolonged absence from learning was also noted as a challenge: "Being away from university for many years, (in my case, 20) is a real hurdle. Just getting back into the mind-set of the student as opposed to the teacher is a challenge in itself". A participant "out of the system for a long time" expressed the sense of "needing more direction". Another participant shared his experience with returning to school and the barriers he encountered:

> I too returned to school after an eleven-year hiatus, and APA meant absolutely NOTHING to me upon re-entry! I felt lost and sometimes, VERY in over my head. I was a mature student and DIDN'T ask questions because I didn't want to look foolish, or feel stupid!

The fear of "feeling stupid" by "asking simple questions" was shared by other participants and resulted in as one participant noted: "a lot of extra time is spent researching before posting in the forum and each assignment".

4.2.3 Web-Based Group Work

The third sub-category under the category *Learning to Learn Online* is the sub-category entitled *Web-based Group Work.* The content of the sub-category is synthesized as follows:

Table 4.6 Synthesis of Sub-Category: Web-based Group Work

Web-based Group Work	
Group work and communication much more time consuming in web-based environment	Keeping track of number of conversations in chat difficult
Difficult to organize meetings and meet deadlines	Quick changes in discussion hard to follow
Large groups very difficult to work with online	Time zone differences makes scheduling of synchronous meetings difficult
Experiences of rejection in attempting to join or form a group frustrating, feelings of being an outsider	Time being wasted in group meetings
Varying degrees of technical ability and comfort level within groups	Requires everyone being available at the same time – difficult at times
Easier to disregard other group member's opinion	Synchronous meetings very frustrating due to interface
Difference in time zones makes synchronous communication inconvenient	Group members not staying with one idea or topic during discussion frustrating
Difficult to confront team members who are not fully participating	Technical tutoring may have to occur before the actual group work can begin
Making decisions online requires a lot of time and careful writing	No accountability because of web-based environment
Communication is much less efficient	Partial participation by group members
Frustrating when group members do not respond to emails promptly or not at all	Some team members have little skill technically
Anxiety in not knowing people in group	Lack of or low level typing skills

The sub-category *Web-based Group Work* groups those statements containing keywords including: *communication*, *rejection*, *misunderstood*, *participation*, and *time zones*. *Web-based Group Work* was chosen as the title for the sub-category because it best represented the relationship between these keywords and spoke to the challenges and barriers that participants perceived they encountered when participating in organized web-based group work in a synchronous, technology-based environment. Participants shared many of the challenges they encountered while participating in or attempting to participate in web-based group activities. One participant identified group work as his "greatest frustration" and provided this insight into his experiences in web-based group work:

> My greatest frustration with the courses I've participated in to date has been with the group work component. I understand the importance of collaborative work at the graduate level, but the online format brings with it a host of complicating factors. The lack of face-to-face interaction makes communication much less efficient, and therefore more time consuming. Some group members are less tech-savvy than others, in which case tutoring must occur before the actual group work can start. In my case, a difference in time zone makes synchronous communication inconvenient. Working with a partner for one UCCB course was tolerable. Working in a group of five, only one of who shared my comfort level with the technology was hell. Instructors who assign group work need to recognize that it is a whole different animal online compared to the same assigned task in a traditional setting.

Various participants raised the issue of time as it related to web-based group work. One participant commented on "the time consuming nature of group collaboration". The same expectations require much more time in an online course than in a traditional course. In addition, another participant questioned the value of online group-work when the factors of time and technical limitations are considered. "At the best of times, group work is more time consuming online than face-to-face. In addition there are practical and

technical limitations... these combined obstacles far outweigh any value group work might otherwise bring to a course".

One issue identified by some participants was that of attempting to join or form a group on the Internet and the impact it had on them personally. "The low point for me in the course came when I asked four separate people to form a group with me and everyone was already in groups... Feeling like an outsider killed my motivation". Another participant shared these experiences of trying to join a group: "...having to beg for someone to take you in a group is like kindergarten and humiliating". The challenge of being in a group "where the members know each [other] well and treat it like a meeting at a party or a social gathering" was "the most frustrating thing in the world" for one participant. Another participant shared that he experienced anxiety when required to participate in group work: " I did not know the people".

Some who had participated in online group work also raised the issue of scheduling and how it can "be a nightmare". The problems with scheduling may result from the geographic location of group members and different time zones. One participant offered this comment on the issue of differences in time zone and the problems it created for group work, "The difference in time zones makes synchronous communication inconvenient. Due to large difference in time zones (4-5 hrs) we have been forced to limit our number of chats". The issue of the difficulties associated with group work and different time zones was not isolated. "I had one group where the team members were literally from across Canada - setting up meeting times was very difficult. Email helped - chats were out of the question". Distance also presented other challenges when it came to

group work: "The e-learning environment doesn't work well in group conditions due to distance issues, clarification, and interpretation issues that develop due to distance". In addition to the issues associated with scheduling, one participant was faced with a different challenge when participating in online group work and found that "the number of conversations going on at the same time made it difficult to keep on track of the different threads".

Other problems associated with group work included " bad experiences with someone who didn't do the work and didn't respond to emails promptly (or sometimes at all)" while another participant found that "making decisions online requires a lot of time and careful writing" when "collaborating online". One participant shared the following comments on his experiences with web-based group work and the challenges encountered:

> When dealing with classmates who are in international locations it is difficult to get schedules to mesh. Some group members are waking up early in the morning, others may be staying up late at night. When many topics are being discussed things [can get] confused. Some group members with nothing to say in one area will change the subject and two different questions can be simultaneously discussed. In addition, it can be frustrating if your views are not acknowledged or if a quick typist is saying your ideas before you get the chance to contribute. When people are dominated by the chatty group members or the quick typists they may start new topics so that they get to contribute. This is counter-productive. Some rules and regulations need to be established to ensure that all group members are well served.

Another participant also commented on experiencing feelings of being ignored while participating in online group work. This participant observed, "their comments are easy to ignore likely because the chat environment allows you to easily disregard someone's opinions". This same participant had the experience of being in a "team of 4 where only

2 people contributed at all. It was the same level of work but with half of the team". The lack of opportunity to "confront these individuals due to the distance was challenging". This participant made this comment about his online group work experience: "This is a challenge because I think it seems much easier to let members of your team down when you know that you will likely never run into them in a social or professional setting". A similar experience was shared by another participant in a team of 4: "[O]nly 2 of us completed a large amount of work". This lack of involvement by all group members was described by one participant as "completely frustrating".

The size of groups and associated problems was raised within the discussion on web-based group work: "Group size is an issue in any delivery format, however, I think it is more of an issue in Web groups". One participant found it "much easier to work with a partner" and would not "recommend large group work" and suggested that "groups of 2-3 would be sufficient". This view on group work and group size was shared by another participant:

> I don't care much for group work anyway, but it can be organized better than it sometimes is. Groups that are too large are the worst - no more than 3 is best, and there has to be a way of dealing with people who don't share the work.

In addition, problems with the "changing nature of groups" were also cited. This involves group sizes changing from the first of the course because "some have dropped the course". The participant went on to explain:

> When profs assign group work at the beginning of the term you could start with 4 members in a group. A few weeks later you could have 2. The profs need to be prepared for this and also to assign group work later in the term, when the final class number has been established and students have gotten to know each other.

Not only do the instructors need to be cognisant of the "changing nature of groups" they must also consider the implications of assigning group work projects in a web-based environment:

> Instructors need to re-think the issue of group assignments that are molded [*sic*] based upon the legacy style classroom. Giving a group an assignment when they are in a face to face situation invokes a totally different set of circumstances than the same assignment given in an online situation. The issues stated in the Discussion Forum stem from this change in venue. As students' habits and thinking have to adapt, so do the instructors!

The need to "be very clear about what you mean" was identified as an issue when communicating in online group situations:

> I think that one comment I made in a group environment was taken quite out of context and was the source of much heated debate as to whether it meant one thing or another it had to be explained and apologized for to get the message across that I did not mean it in a negative way.

4.3 Involvement/Role of Instructor

The challenges and barriers articulated by the participants relating to the involvement and role of instructors were grouped into three sub-categories: *Feedback from Instructor, Interaction with Instructor,* and *Instructor Technology and Web-based Teaching Skills*. The category *Involvement/Role of Instructor* groups together those statements that are related to the perception participants held on the role of the instructor and challenges and barriers they encountered while interacting with instructors.

4.3.1 Feedback from Instructor

The first sub-category in the category *Involvement/Role of Instructor* is entitled *Feedback from Instructor*. The content of this sub-category is synthesized below:

Table 4.7 Synthesis of Sub-category: Feedback from Instructor

Feedback from Instructor	
Amount of time it takes for instructors to respond to email and student questions	Lack of feedback can cause uncertainty among the students
Feedback too late, not timely	Limited feedback or too general feedback
No response from instructor when asked a direct question	Without feedback, the discussion is often too low-level
Lack of response from instructor leads to feelings of being ignored, can be de-motivating	Little or no feedback leaves students feeling as if they are in a void, or alone
Difficult to get clarification from instructors, students required to develop own interpretation	Need for instructor to provide feedback and guide the procession through the course
Need for feedback ASAP especially in early stages of a course	Instructor gives cryptic and sarcastic feedback in the forum
Providing too general feedback to whole class rather than individual feedback	

The sub-category *Feedback from Instructor* groups together those statements containing keywords including: *response, uncertainty,* and *clarification. Feedback from Instructor* was chosen as the title for this sub-category because it expressed the relationship between these keywords, and it also expressed the challenges and barriers participants perceived they encountered regarding feedback from instructors. Participants referred to how their participation as students in online courses was hampered because of the nature of feedback or response they received from instructors. In the following excerpt, a participant comments on how instructor feedback is an important element of his online learning experience:

> There is no other way to know if you are on the right track. Others may make these long postings and you figure they know what they are talking about. Without instructor feedback, you have no way of knowing if you are on the right track.

One participant found that it "isn't useful if there is no feedback from the instructor", while another commented on the impact lack of feedback has on him personally, "it is so hard to know how you are doing and where you could improve". This lack of feedback leaves students not knowing "if there is something important that the students have all missed, or if we are grasping the main ideas of the course". Another issue a participant encountered with regard to instructor feedback was instructors providing "general feedback to the whole class". One participant commented on this issue: "This type of feedback does not help each individual student identify where he/she needs to improve", while another participant remarked: "I did not feel comfoprtable [*sic*] asking for specific feedback...his was very general...you learn from feedback...if the whole class gets the same comments…how do you know where you need to improve as an individual".

In addition, it was expressed that "it is imperative that instructors give feedback ASAP, especially in the early stages of the course". Without feedback, or with little feedback one participant remarked that students could feel "as if they are in a void, or alone". Two other participants share their experience with slow instructor feedback in the following excerpts:

> With a week before [an] assignment is due, sometimes you will be lucky to get an answer to a question. One course, [I] got no marks back for the entire summer, and then prof did not hand the marks in on time.

> Another big problem is the lack of feedback from instructors. There are 2 days left in the fall term and I have yet to receive a mark in my course - nothing for the mid-term in October or the assignment in mid-November. The only feedback I have

> received is an e-mail one third the way through the term saying in very general terms that my assignments were fine.

Not only was the issue of lack of instructor feedback identified as a challenge but also how long it took for instructors to provide feedback was identified as a "glaring problem" by one participant when the only feedback he received was his "final grade". The following excerpts illustrate the feelings of two other participants:

> One of the most frustrating things I find about e-learning is something a number of others have already mentioned. I'm sure it's a universal problem – the time it takes for profs to respond to an e-mail. The length of time it takes them to answer what many students feel to be important questions is unconscionable. And there's absolutely no excuse for it. Even if they're travelling, e-mail is accessible everywhere now. And most take very little time to respond to.

> It is the utmost in frustration when you are completing your third assignment and you have yet to receive feedback on your first assignment. This is particularly difficult when the subsequent assignments are based on an initial idea. The slow feedback is not isolated to assignments, often feedback on the forum is very slow and I have moved on before I have received a response.

The lack of "timely" feedback can have an impact on students and the opportunities they have to improve:

> I have had courses where the instructor responded to emails within 5 minutes and some where there was no response. In one course I received a paper back from the instructor (by mail) after two other papers had been submitted. This kind of response does not allow a student to adjust writing so improvement can take place.

Another participant had a similar experience as shared in the following excerpt:

> The big issue with the instructor familiarity comes down to feedback. In one course, the instructor noted that students could email or postal mail assignments. The instructor would take an assignment, in my case all emailed or posted, then print it off, correct it and mail it back. The course consisted of 3 major papers and feedback on the first paper was received by postal mail when the 3[rd] assignment was near completion. This does have a major impact. As a learner, your first assignment in a course, not to mention a first graduate course allows you to establish your direction in the course. By the time the 3rd assignment is in its final stage and the instructor is just getting back to you could result in devastating effects on course success or

> failure. Not having feedback on the 1st assignment gives you no strong basis for your approach on assignment 2.

Besides giving students an opportunity to improve, feedback in the "early stages" can help "get students back on track". Feedback at this stage, as one participant suggested can include "directing students to online sources of help".

Lack of feedback can also have an effect on the online course discussion. "Without feedback, the discussion is often too low-level, avoids risky comments and causes uncertainty as to whether or not there is something more that should be learned". Another participant supported this with the following comment: "The key to good online discussions is definitely good, consistent and constructive instructor feedback and guidance".

How and when the instructor responds or provides feedback can also have an effect on the "feel and confidence in the instructor's involvement". This can have a direct effect on participation as one participant commented:

> In the classroom you pose a question, you ought to get an answer (satisfactory or not is a different issue), but your question cannot be ignored. On the web, well, you don't know why you didn't get a response from the peer or the teacher. If a peer doesn't respond, it is still acceptable but when the teacher doesn't, it is frustrating. So at times you get the [feeling] of being ignored by the teacher and that is de-motivating. This then leads to your downfall in participation and then it gets into a vicious circle.

Not only is it important for students to receive feedback but also, as one participant commented, it is also important "how the message is received" and suggests that "more thought should go into feedback to students". Feedback should be "responsive to the student's question" and not "cryptic and sarcastic" as described by one participant.

The perception "that instructors seem to become detached from the students online" and that "communication is a problem" in terms of "feedback and response to inquiries" was also articulated by a participant.

4.3.2 Interaction with Instructor

The next sub-category under the category *Instructor Role/Involvement* is the sub-category entitled *Interaction with Instructor*. The content of the sub-category is synthesized as follows:

Table 4.8 Synthesis of Sub-Category: Interaction with Instructor

Interaction with Instructor	
The amount of time the instructor spends online and the nature of his/her communication	Need for instructor to clearly articulate the purpose of discussion forum and its purpose in the course
Need for better explanation of what the assignments were on the web	Challenging deciphering instructor's obscure instructions
Professors not communicating important information until too late	Curt or flip responses to email or postings can be misinterpreted
Instructors communicating important course information through discussion forum	Difficult to gauge instructor's proficiency with technology due to little interaction
Learned from fellow students, not the instructor	Guidelines and expectations should be outlined at the outset of the course
Need for professor to take an active role in the discussion	Lack of confidence in the instructor's involvement
Lack of information, notes on website	Instructors should be more visible as a guide, state guidelines
Feelings that instructors teach because they have to	Student enjoyment level often correlated with involvement of the professor rather than course content
Failure to keep course web-site links up-to-date	Need to keep course information up-to-date
Instructors that were too involved and had strict rules for participation	Inconsistencies in instruction methods among instructors

Inefficient relaying of information and course changes	Feeling of taking the course from a computer
Lack of accountability on the part of the instructor	Difficult to get instructor to clarify things
Basic course material should be assembled by professor	Without strong presence of instructor, students tend to wander off and get lost
Instructor not clear on what is expected resulting in students coming up with own interpretation	Discussion prompts hidden in the lecture notes
Need for instructors to facilitate the discussion forums to maintain control, organization and the introduction of new topics	Lack of instructor facilitation skills, lack of involvement and directions
Instructors do not seem to be there for assistance	Instructors seem to be detached from online learners
Instructor assumption that everyone is very knowledgeable in computers	Instructor is sarcastic
Non-existent instructors in courses	Stressful and isolating when the instructor is lost
Vague directions for major assignments	Lack of control on posting in forum
Student doesn't get clarification or direction early enough	Difficult to understand what instructors are looking for
Instructors refusing to play a role in the class	Inability to understand personality of instructor
Limited instructor communication with students	Easier for instructors to ignore online learners
Level of instructor's involvement and organization impacts on discussion	Impression that students were an obligation or annoyance to instructors
Students not provided with a solid background in topic by instructor	

The sub-category *Interaction with Instructor* groups together those statements containing keywords including: *participation, communication, involvement, explanation, direction, facilitation,* and *guidance*. *Interaction with Instructor* was chosen as the title for this sub-category because it expressed the relationship between these keywords and it also expressed the challenges and barriers participants perceived they encountered regarding interaction with instructors in their courses. Participants referred to how the

instructor's level of interaction impacted directly on their own participation, and in some cases, their enjoyment of the course as illustrated in the following two excerpts:

> I have found that often my enjoyment level is directly correlated with the involvement of the professor rather than with the specific content of the course. The active professors who share their wisdom and time have helped me to gain a better understanding of the material than those who were distant from the on-line classes. In addition, the professors who have provided detailed notes and experiences have often been better at responding to questions and queries which has made completing course work easier.

> I find the prof's style has a lot to do with my enjoyment of the course, much more than workload, or other considerations. I find that unless the prof is a real presence in the course, people tend to wander off and get lost, at least metaphorically, and this results in a great deal of anxiety in me and in other students.

This perception of lack of interaction by instructors can have a negative impact on students, as stated by one participant:

> I feel capable of learning material on my own but I enroll in classes so that I can benefit from the knowledge of my teachers, when they refuse to play a role in the class I tend to lose interest in the material and become very agitated with the learning process.

Participants expressed frustrations with a discussion forum that did not have direction, guidance, and input from the instructor. As one participant commented, "The key to good online discussions is definitely good, consistent and constructive instructor feedback and guidance". Another student found that the discussion forum in a course can be "extremely confusing" without "direction as to the subjects to be discussed". Another participant commented on this subject:

> After being in a course where the discussion was useful, it is frustrating to be in a course where there seems to be no useful purpose for it in the course except as a bulletin board to vent. I wish the professors took a course so they could see the benefits of the components of the system.

Not only does there need to be directions for posting but also, as one participant remarked, this direction has to be of a particular calibre to be helpful:

> It isn't useful if there are very general instructions to post a certain minimum of comments during the course. This tends to produce very general comments and "me too" additions. They don't add a lot of depth or new knowledge to the topic.

When discussing the need for instructors to provide more guidance, a participant suggested that instructors may want to consider providing students with the following: "lists of suggested readings, agreement with people who make good points and suggestions for important alternative points". Another participant shared his different experiences with two instructors:

> During several of my previous web-based courses it was very rare to hear from the instructor. He would pop in once a week to introduce the forum topic of the week and then disappear for a week. He made very generic comments about the forum discussions, such as "great comments, good conversation, etc.". In contrast, an instructor from another web-based course was obviously very involved in the forum discussions, quoting from student postings during his posts to the forum.

The following quote speaks to a participant's different experiences in terms of level of instructor direction and guidance within a course:

> I have seen a wide variety of involved and active professors makes [*sic*] learning much the same as classroom learning and I have had professors who do little else but provide a basic syllabus and expect the students to complete a self-directed study.

The lack of direction issue was discussed by participants not only in terms of the instructor's involvement but also in terms of the information and guidance provided by the instructor:

> I have had experiences where I am expected to complete assignments that are based on phrases that have been coined by the teacher. The problem with this is that there were no readings or online resources available to assist with the assignments since the terms used were basically created by the prof. The assignment had to be

> completed by looking at samples of the teachers [*sic*] work. This lack of direction made the course very difficult to complete as the expectations were not clear.

In addition, this lack of direction or "facilitation skills" by the instructor in the discussion can result in the forum becoming "mass chaos", making it "difficult to contribute or learn". Another participant made this comment in regard to how the "lack of direction and organization is a big problem". This issue is elaborated on in the following quote:

> There are times when I feel like I'm spinning my heels [*sic*] in that discussion forum with no intervention from the professor and this is the ideal place for the prof to give feedback, offer prior knowledge and examples to enable learning to occur.

In web-based learning "guidance from the profs is essential ...plus careful organization of the work". Without effective guidance and good organization "it is very frustrating when you have to try and decipher the instructor's obscure instructions". A participant described his experience with the lack of instructor guidance:

> I've experienced two courses from an instructor that was not very involved in the course discussions. In addition, his directions for major assignments were very vague. Due to his lack of direction and lack of involvement in the course, I felt I learned from my fellow students but not from the instructor. If an instructor stays involved in posting to the forum and asking/answering questions, then the courses tend to be enjoyable.

One participant shared his opinion that "an instructor is indispensable to a web-based course". His thoughts regarding instructor interaction are expressed in the following excerpt:

> [S]ome of them [instructors] think they can abandon their courses for days and even weeks at a time. I've had instructors who have said they will be traveling [*sic*] for the next week or two and cannot be contacted. Don't they have laptops? What about the same e-mail access that normal people have in Internet cafes, hotels etc.? I think it's because they don't want to be contacted, not that they can't. And I think web courses make it too easy for them to ditch their classes and they take advantage of it.

This idea that some of the instructors "may not be as involved with the web-students" because "web-students are not 'in their face' so it's easy for them to ignore the technology a bit" was echoed by another participant.

Active instructor facilitation of online courses is an issue raised by several participants. One participant shares that "there has been little facilitation in the majority of courses I have taken". He feels that "this is one area that can stand improvement". Another participant had this to say about facilitation in an online course:

> When teachers teach class they show up. The same courtesy should apply in Webct. In the very least they should direct (facilitate) the discussion once a week and respond to questions. Professors should interact with the system - they cannot learn it from a book.

This lack of instructor's interaction, at times, made one participant feel as if he were "wandering without a guide". Another participant described the feeling that "profs do not seem to be there for assistance". He went on to comment, "I get the feeling since we are doing our masters it is 'find out for yourself'. This may have some merit but many hours are spent finding out sometimes when a brief explanation would have helped".

Getting instructors to clarify things was also difficult, as one participant commented: "The prof didn't do a very good job of explaining what the assignments were on the Web. It was hard to get him to clarify things". This lack of clarification sometimes required, as one participant described, the necessity for groups of students to "come up with our own joint interpretation". As another participant expressed, "It becomes a pain in that the student doesn't always get clarification or direction early enough". The need for consistency in instruction is expressed by another participant: "Some instructors 'visit' the course occasionally, some from time to time, and some are

practically nonexistent. As well, instruction, note giving, and feedback are all over the place. More consistency is needed here too".

Because of the web-based nature of the courses, one participant found it "virtually impossible" to "develop a relationship with the instructor". Another participant commented that he "found that some courses are more welcoming than others" and in his current course "it feels like we're all individually taking a course from a computer" and that when the instructor "didn't post to the forum at all" it felt like he was the "ghost in the machine". The "amount of time the instructor spends online" combined with "the nature of his communication" can "really affect the experience for students". One individual remarked they have experienced "feelings of being ignored by instructor" and that it "has occurred many times". The participant shared the impact this had on him: "You almost want to stop posting altogether but then you realize that you must continue for the grades". Other issues or challenges related to instructor interaction that were raised by participants included the lack of "marking/grading" schemes in courses, discussion prompts "hidden somewhere in the lecture notes, disconnected from the discussion they produce" and "profs leaving important information too late to notify students". Another participant shared his frustration in terms of communication with instructors and remarked "it is difficult to understand what instructors are looking for just from e-mails or posting to a fourm [*sic*]".

4.3.3 Instructor Technology and Web-based Teaching Skills

The final sub-category under the category *Involvement/Role of Instructor* is the sub-category entitled *Instructor Technology and Web-based Teaching Skills*. The content of the sub-category is synthesized as follows:

Table 4.9 Synthesis of Sub-Category: Instructor Technology and Web-based Teaching Skills

Instructor Technology and Web-based Teaching Skills	
Layout of courses geared more toward the classroom setting	Instructors challenged by the notion of delivery outside of the classroom
Ineffective attempts at online collaboration	Lack of instructor familiarity with technology
Need for instructors to take a course on setting up course format	Instructor's technical competency lower than students
Lack of computer technical knowledge experience and ability	Lack of buy-in to the concept of web-based learning
Instructor unfamiliarity with operation and components of web-based learning system	Need for students to assist instructor with the system
Lack of trust in technology by instructors teaching online	Instructor's familiarity with technology can result in high expectations
Varying ability of instructors in terms of using discussion forums and course tools	Do not utilize chat or other technology applications in WebCT™
Lack of training in online communication and facilitation	Assumptions of student technical skills beyond the identified program computer requirements
Instructor's familiarity and/or commitment to web-based learning	Student confidence affected by instructor's familiarity with technology
Instructors exhibit a lack of technical training	Need for some continuity in the course delivery
Instructors need training in the components of the e-learning system	Instructor training in online communication and facilitation needed
Instructors not properly trained to teach online	

The sub-category *Instructor Technology and Web-based Teaching Skills* groups together those statements containing keywords including: *training, technical knowledge, unfamiliarity, trust, ability, understanding,* and *experience. Instructor Technology and*

Web-based Teaching Skills was chosen as the title for this sub-category because it expressed the relationship between these keywords and it also expressed the challenges and barriers participants perceived they encountered in terms of an instructor's technology and web-based teaching skills. One of the issues raised by a participant was the sense that "some of the instructors were challenged by the notion of delivery outside of the classroom let alone Web delivery". The feeling was that "this constrained some of the value such a program has". Accompanying this issue is the one raised regarding the "lack of trust in technology on the part of the Professors". In this regard, the participant found the entire course to be "one of drill and practice, read and regurgitate" and the requirement for the "exam to be written taking pen to paper". The participant concludes with, "I survived but don't feel that I learned much". Another participant shared a similar experience:

> Prof/Instructors should be aware that the curriculum content for face-to-face (FTF) classes should be different then [*sic*] online class content. One of my courses required assignments to be mailed and then returned with marks and comments. There was a FTF class taking place simultaneously and the classroom lectures were provided online. Classroom discussions, questions, etc. were never included. There was always a since [*sic*] that you were missing out on something.

Another participant shared his experience of a course and how it was like "a correspondence course". He was of the opinion that the instructors "are stuck in correspondence mode and do not know it is distance or IT!".

This notion that some instructors are challenged by online delivery may also signal a lack of "buy-in" by instructors "in terms of distance learning" or a lack of "instructors' trust in technology". One participant had this comment: "If there is no belief, trust or buy-in in terms of distance learning, I question whether this professor should be teaching

online courses". Another participant was more direct: "Instructors who do not trust technology should not be delivering web-based courses - period!!!" In the following, a participant shares his frustration with the issue of instructor buy-in to technology:

> I'm taking a course now and the prof is great - very organized, competent etc. but he wants assignment mailed in. This frustrates me. If I'm paying to be a distance learning student then I at least expect buy-in from him as well.

From one participant's perspective, to deliver courses online requires that the "instructor should be well versed in the use of the course tools". The participant explained further, "If a teacher or instructor could not use taken for granted tools such as books, calculators, overhead projectors, chalk, etc., we would not be expected to tolerate it, so why should online expectations be any different". The perception by participants of their instructors' comfort level with the technology and that some of them "are not equipped to use the technology to the fullest" was an issue of discussion during the study. As one participant commented, "There are times when I feel like the students are more familiar with the technology than the professors, which can be a little disconcerting". This perceived lack of instructor familiarity with technology can have a direct impact on students. "If the instructor is not familiar with the technology, especially when they are teaching technology base [*sic*] courses, the level of confidence certainly diminishes". Another participant shared the view that "if students are required to have a particular competency in computer technology", then "the instructor should be held to the same or higher standard". The lack of ability or knowledge of available WebCT™ features among instructors can lead to problems: "There is the potential for confusion when, for example, assignment expectations or due dates are changed through a message in the

discussion forum, but the original expectations or dates remain on the course outline or calendar". This "lack of understanding of instructors on how to use the technology" can result in "the forced application of misguided attempts at collobration [*sic*] throught [*sic*] chat lines and the forum" remarked one individual.

Two other participants shared their experiences with instructors' unfamiliarity with the learning interface:

> I found one prof in particular had no real knowledge of the type of questions we asked about posting to the web thru Sitescape and could not tell us how to get our material to go thru when it was a relatively simple thing.
>
> I was in a course where the professor was only chosen a few weeks before and did not seem to be really with the system for a month and all our emails of answers were lost and had to be resent. Thank God there were groups assigned in that course. It was my first official course and when we realized we were in a ship without a captain we just plugged ahead with the group work and we were in contact everyday. Now we can say it was a great experience but we were really stressed at the time [and] a little scared.

One participant shared how he was "frustrated when teachers lost all the class files and we helped the teacher with the system". Another participant remarked "it was stressful and isolating when the prof [was] lost". The need for instructors to be prepared to teach in an online environment is stressed in the following excerpt:

> I've taken 8 course thus far and honestly feel only 3 prof [*sic*] were up to speed on the technology policies and procedures for on-line courses, because you're a good f-to-f instructor does not mean you're equipped to provide the same experience on-line.

In addition to instructors and their level of technical knowledge, participants also expressed frustrations with the set-up of the courses in an online setting. "I have been a little disappointed in the lay out of some of the courses and find they are geared more

toward the classroom setting". The lack of resources provided by instructors was also identified as a problem:

> A good selection of links is invaluable; sometimes I have ended up searching on my own which can be very time consuming. I expect to do searches for my own papers, but for the core material of the course, it saves me time if the instructor has identified key resources.

Not only is the provision of resources such as web-site links important but these links must also be kept up-to-date in courses as illustrated in the following quote: "Another thing that drives me crazy with Web-based learning is links that don't work because instructors haven't checked them recently enough".

At times there appeared to be a lack of knowledge or ability on the part of instructors when it came to teaching a course online. One participant commented on this issue: "The instructor needs to be congisant [*sic*] of how to offer the coruse [*sic*] online as opposed to face to face. Some seem to do a much better job of that". Another individual shared these comments regarding what skills an online instructor needs: "An instructor being an expert with computers is not as important as his ability to teach (or perhaps better stated) his ability to facilitate his student's learning".

On the other side of the issue of instructors with questionable technical knowledge is the issue of instructors who are "extremely knowledgeable in computers". The problem with this situation lies in the fact that the instructor "assumes everyone else is too". As a result, as one participant remarked, " You spend a lot of time just learning the extras". Another individual remarked "the prof's familiarity with technology led to too high expectations for students who in many cases were not as familiar". The participant

identified this as "a challenge as a learner, a big challenge in some instances". Another participant made this comment regarding instructors' technology expectations:

> Those that were very familiar with technology often had expectations for us students to create programs, software etc. which were much too high. Sometimes the professors expected too much and us students were treading water, trying to learn all these new things so as to do what was required.

Some participants also expressed a need for instructor training. The primary challenge that participants in the study expressed with regard to support for instructors was the lack of, or the need for instructor training in the areas of "online communication and facilitation". The following excerpts help to illustrate this point:

> ...instructor training in the area of online communication required- I think that for students to benefit the most out of this delivery format, the instructor should be savy [*sic*] with the tools. If not, students do not have anyone to turn to for help.

> I do, however, feel that online instructors need more training in online communication and facilitation. It is not the same as teaching in a traditional classroom and instructors need help in adapting to this new teaching environment.

An individual shared the challenges he experienced with an instructor's manner when communicating online:

> I have been taking a course where the professor is sarcastic on the forum. He may be trying to be funny or cute but it comes across as rude and offensive. I find that these curt replies do little to inspire me to participate and have made me fear the teacher and fear asking him questions.

On this same topic, another participant made this comment: "Perhaps a mandatory course in online communication before teaching online would alleviate some of these problems". Another individual remarked that what was needed was "communication training geared specifically toward moderationg [*sic*] online and offering feedback".

One participant expressed his feelings on the topic of instructor training, particularly in the area of the technology used in web-based delivery programs, "I think instructors should be very familiar with the technology before attempting to use it to teach. This is more a fault of the institutions than the instructors". Another participant had the perception that "many [instructors] don't know as much as the students about the platform they are using for delivery" when commenting on the need for instructor technology training.

In order for instructors to teach effectively, they "need training in the components of the system and there needs to be some continuity in the delivery besides the background of webct ". In support of this concept of continuity, another participant suggested instructors "should be trained and maybe participate in a course with the other profs". He also added this comment: "Every term I wished there was someone in charge that we could tell how one professor was using the system so well, the other profs should look in to see".

4.4 Need for Support

The challenges and barriers articulated by the participants related to the need for support when learning online are grouped into two sub-categories: *Support For Students* and *Support From Institutions*. The category *Need for Support* groups together those statements that are related to the perceptions participants held on the availability of support and the challenges and barriers they encountered when dealing with support issues.

4.4.1 Support for Students

The first sub-category in the category *Need for Support* is entitled *Support For Students*. The content of this sub-category is synthesized below:

Table 4.10 Synthesis of Sub-Category: Support for Students

Support for Students	
Need for students to have a tutorial or guideline of how the forum works when starting out in online program	Accessibility to assistance limited
Need to provide student support when using web based systems	Adjustments and support have to be provided for those who enrol at bare minimums
Lack of quality year-round service and support	Had to enlist help from other students or from outside of the course
Phone help can be frustrating for those who rely on being shown	Need for how-to manual before starting the program
Need for people when providing help to talk step by step, not always available	Did not want to bother professor for help or appear stupid by asking for help
Simple difficulties can cause major headaches	Delay in receiving support can be frustrating and impact the learner
Felt lost and sometimes in over head	Stressful when had to learn things on own
When out of system for long time tend to need more direction	

The sub-category *Support for Students* groups together those statements containing keywords including: *service*, *guidance*, *accessibility*, *help,* and *support*. *Support for Students* was chosen as the title for the sub-category because it best represented the relationship between these keywords and spoke to the support needed by online learners. As part of the study findings, participants referred to the important role support plays in online learning. One participant emphasized this point in the following quote: "Help support is sooooo [*sic*] important - without the tools we 'are nothing' in web-based courses". Another individual shared this comment in regard to student support: "Need a support system for onlne [*sic*] students. We often feel we have nowhere to trun [*sic*] for

help". The importance of the need for a support system is emphasized in the following excerpt:

> My one issue of contention is with the provision of guidance when using the Web Based systems. Pity the poor person who enters this realm untutored in the ways of computer. It has a learning curve, the slope of which will change depending on the person. My experience has been pretty reasonable, but I have had issues with the software, none of which come to mind at the present. This has proven to be frustrating, and I can only imagine, very discouraging for some.

One participant remarked upon the need for support - especially when "folks entering the program have very different abilities and are all expected to perform at the same level". Given this situation, he went on to say that "there needs to be some form of support put in place to help those who enter with a bare minimum progress to more advanced capability". Another participant emphasized the need for support in the case when a student is returning to school after a long time. "We promote multiple intelligences and differing learning styles, but sometimes forget to address the most basic of needs in students who are returning to study after a number of years". The perception that there is lack of help available and the accompanying frustration is shared in the following comment: "There cerainly [*sic*] have been lots of times for me when I am staring at the screen knowing there is little help available (and I am relatively computer literate)".

Ready access to support was at times an issue as one participant remarked:

> It can be very frustrating taking a distance education course when a technological problem arises. For example, when course access problems arise, which they did for me a couple of times, it sets you back as you must try to contact someone at the university and usually have to wait for an e-mail with instructions.

Not only was access to help an issue but also was the availability of help, as one participant commented: "I think it also disappointed me to think that there was so little help".

The type of help that was available to meet the needs of students was also frustrating:

> This idea extends back to support of users when taking these courses. There is a call in help line available if you run into trouble, and there are tutorials which explain all of the elements of a program, BUT, there are those who rely on being shown; the concrete people, for which explanation and phone help are mere frustrations. The phone can be useful, if the person at the other end is willing to talk step by step with a person. I see this as a major impediment.

On this same subject of availability, another participant remarked: "In some cases when step-by-step help was available, it was wonderful, but this was not available very often".

One participant noted that students could contact the instructor for support, but this, in itself, posed challenges for learners:

> As a distance learner, you had little support in these cases. Ypou [*sic*] did not want to bother the prof as you felt that he assumed you knew how to do what was asked so you did not want to appear "stupid" so instead you would enlist whatever help you could outside of the course to try to accomplish what was asked. In the end the learning was great, but the stress and frusterating [*sic*] was too.

In addition to not wanting to "bother the prof", another participant had the perception that there was little support offered by the instructors in the first place:

> [A] brief introduction by the professor would help at the beginning. Even if they surveyed to find out who is doing thei [*sic*] first course and corresspond [*sic*] with them with assistance. The profs do not seem to be there for assistance.

In the following two quotes, one participant shared his views on what types of support he would have liked to have had access to when he was beginning his online program:

> I think we should all receive a manual before commencing the program on how online courses work. A type of how to, what to expect. It is very frustrating at first, such as learning the way to post, where, etc. I think a nice little pamphlet would be great to help!
>
> It would be a definite asset to perhaps provide students with a guideline of how the forum works, the first day I was in the site, I had no clue what to do, how do I post a message, at first I did not even know the messages were threaded and missed half the responses. I figured it out, but it would have been nice to have known all that from the beginning.

In terms of types of support needed, another participant suggested that "a help desk would be of particular importance" in terms of providing support. He also suggested "some type of tutorial would also be great" and that "something could be sent out when the students enter the program either in print or CDROM format". This point of needing support "early" in a program was raised by another participant. He suggested "some brief tutorial would have helped".

In addition, one participant shared how students also looked to fellow students for support:

> I have been in a few teams where people have so little skill they cannot understand how to access the sylibus [*sic*], post to the forum etc. this appears to be very stressful for them as they call other team members or find people who can help them navigate the system.

Not only did they look for support from other students but they also accessed other sources:

> I have learned so much but when it comes to technical problems I have to call for help. The vianet (my ISP) guys knew me by name. They were such a help. I could do all of the computer requirements listed for a student doing a masters but I felt the professor assumed more....

The need for support to be in place for students in web-based courses is necessary in order for them to learn effectively. This need is expressed in the following excerpt: "I

like learning and practising new ways of doing things, including learning itself. But to do that you need the right supports in place, including the technology, the instructors, and relevant, well-designed and organized courses". Another individual remarked he was "happy with the tools at our disposal" but that he was "often unhappy with my teachers [*sic*] use of the technology or the accessability [*sic*] to assistance that would be available were I in a traditional couse [*sic*]".

4.4.2 Support from Institutions

The second sub-category under the category *Need for Support* is the sub-category entitled *Support from Institutions*. The content of the sub-category is synthesized as follows:

Table 4.11 Synthesis of Sub-Category: Support from Institutions

Support from Institutions	
Staff at times not able to provide information	Institutional staff not always knowledgeable or aware
Staff should be ready to assist students year round	Support sometimes very distant
Need to recognize that more diverse clientele are accessing the programs	Support not always available in the summer term or at easily reachable times
Institutions overburden instructors with too many students	Varying experiences between institutions
Institutions have not spent enough time training instructors to facilitate online	Institutions do not provide same level of service to distance students

The sub-category *Support from Institutions* groups together those statements containing keywords including: *staff, training, service, knowledgeable*, *support*, and *awareness*. *Support from Institutions* was chosen as the title for the sub-category because it best represented the relationship between these keywords and spoke to the challenges and barriers encountered by participants in regards to support from institutions. The

issues of availability of year-round service and access to knowledgeable staff was identified by one participant as a challenge he encountered with regard to support from institutions:

> I have had opportunity to deal with their division once this year and, although helpful, could not put their hands on an instructors name or address, couldn't tell me if he was officed in the building, and didn't seem to be fully aware of what was happening with the program. In defence of the people, this was during the summer in the off season, but I think the staff should be aware of their students year round. I am a student year round so I expect to have service when I am in school, not just regular business hours.

Another participant shared his experience with accessing support from various institutions offering web-based courses:

> I am finding there is a world of difference between the institutions which offer online courses and even the three involved in my courses in this program. The support is sometimes very distant and not always available in the summer term or at easily reachable times for me - eg. one of the courses is from the UK and that is 5 hours later so email is the only way and the listserv is a long wait for specific program or course questions relating to the particular type of teaching practices.

This problem with lack of knowledgeable staff and staff that could not provide information was not isolated:

> I did experience varying experiences between institutions and found this frusterating[*sic*]. I was used to and pleased with the workings of one institution and then found those of another quite frusterating[*sic*]. I also experienced lack of awareness by staff, at times when I needed help, no one seemed to know who could help me and I got a lot passing around.

Another participant had difficulty with his password that was required to access the course site and shared his experience with the institutional support offered: "Usually I phone call and 5 very friendly people later I'm straightened away - friendly service but not always knowledgable [*sic*] staff".

One participant commented on how institutions must become better prepared at meeting the needs of their distance students enrolled in web-based programs and should also be prepared to offer the same level of service as they do to on-campus students:

> Students cannot exist or work in a vacuum! Institutions should recognize, as they have with services for on campus students, that the distance students have needs that must be met. Having the student away from the institution does not abrogate their responsibility for that student in terms of support with study difficulties, age/gender/race issues, technical difficulties, etc. Distance students pay fees that are comparable with those paid by on site attendance but are not provided the same level of service.

Another noted that because not all students enrolling in a web-based course are at the same competency level, institutions must be prepared to meet their needs in terms of support:

> Adjustments and support have to be provided to counter the difficulties experienced by those who enrol at bare minimums. These courses are becoming more widely used, and not just by "competent" individuals. I believe it will become more prevalent and widely accepted manner of educating oneself, or upgrading. Those who control the resource need to recognize the fact that a more diverse clientele are accessing the programs, and adjust to their needs.

Not only do institutions have to be prepared to meet the needs of "a more diverse clientele" but they must also train instructors for web-based teaching:

> Although I see the promise of online learning, I think at present the horse is put before the cart. Institutions have not spent enough time training people to facilitate online, they overburden facilitators with too many students for them to be effective and very few courses are evaluated by students, so quality assurance is not at the top of the list.

Another participant made this comment regarding support from institutions for web-based programs:

> In a race to be innovative and to get the almight [*sic*] dollar from students who find distance learning convenient, institutions in general have not taken the time to refine

> delivery methods, hence teachers are not properly trained and students are admitted without the prerequisites needed for the courses.

The perception that support is also needed from the institutions in order to convince instructors of the value of web-based learning was expressed by participants. The following two excerpts address this issue:

> Web-based learning in itself (course content, texts etc.) has met my expectations but I've been disappointed with some of the professors. Some I don't think believe distance education has its place in academia and therefore still require pencil and paper, mailed in assignments etc. Being from a continuing ed environment, Ive [*sic*] seen distance ed emerge in the traditional institution but I think there needs to be a chaneg [*sic*] in the institutional culture. This will take buy-in, communication, trsut [*sic*] factor and a reason why they should embrace this.

> I think it goes right back to institutional culture. I don't think some of the academics have ever embraced web based learning because of their underlying assumptions about what constitutes high end learning. Maybe it's lack of communication and no explanation as to how it can work for them, the benefits etc.

4.5 Lack of Social Interaction

The challenges and barriers articulated by the participants related to the lack of opportunity for social interaction when learning online are grouped into two sub-categories: *Communicating Online* and *Interaction Online*. The category *Lack of Social Interaction* groups together those statements related to the perception participants held on the lack of opportunity for social interaction and challenges and barriers they encountered when dealing with this issue.

4.5.1 Communicating Online

The first sub-category in the category *Lack of Social Interaction* is entitled *Communicating Online.* The content of this sub-category is synthesized below:

Table 4.12 Synthesis of Sub-Category: Communicating Online

Communicating Online	
Found the web-based environment very sterile, impersonal and matter of fact. It lacked passion and emotion	Felt was missing out on personal experiences of professor and students
Lack of social aspect, meeting people and good discussion as compared to classroom setting	Miss interaction with students, the spontaneity, body language and facial expressions
Difficult to make personal connection with screen	Discussion of course issues, problems and questions less effective in synchronous and asynchronous chats
Lack of genuine interaction as in a traditional classroom	Postings of a social nature not welcomed
Difficult to develop a feeling of belonging to a community of learners	Found discussion postings no way to connect with other students
Missed the social aspect of learning	Difficult to develop relationships
Limited opportunity to share experiences and questions	Miss live interaction and camaraderie of classroom
Missed the face to face contact	Lack of sense of community
Lack of opportunity to communicate with and explain ideas and problems with instructors	Working only online limits the non-verbal element
Lack of opportunity to discuss non-course issues and those of a social nature	Found forum environment formal and cold
Sarcasm, jokes and other emotions do not convey on a forum	Feelings of missing out on valuable classroom discussion

The sub-category *Communicating Online* groups together those statements containing keywords including: *social, interaction, discussion,* and *relationship. Communicating Online* was chosen as the title for the sub-category because it best represented the relationship between these keywords and spoke to the barriers, challenges, and difficulties participants perceived they experienced in communicating

online with fellow students and instructors. One of the challenges of learning through an online medium was the lack of opportunity to interact with fellow students as illustrated in the following excerpts:

> I miss the live interaction of the classroom. The spontaneity, body language, facial expressions, even the camaraderie that comes from having trudged through rain or snowstorms to get to class, all contribute to a feeling of shared "groupness" [*sic*] if not togetherness, and this translates into positive learning interaction that is missing from online education.

> To me, interaction with other students in a forum has not been the same as within a classroom. It's the social element perhaps and the postings are really not a way to connect, but rather a justifier for evaluation purposes.

The "missing element" in the use of this medium was identified by one participant as the lack of interacting "face to face" with other students. In the following two excerpts, participants commented on the limitations of a web-based environment and what they miss about a traditional classroom:

> Nothing can take the place of discussion of a hot topic over coffee, or a lively debate, complete with interruptions, emotion, etc. The environment provides the capability to discuss, but in a sterile, very civilized, fashion. It is also difficult, sometimes, to discern the flavour of a reply. We rely on our senses a great deal in deriving intent and meaning from a conversation. Text is fraught with interpretation errors; the connotation of a statement lost in the message itself. Without the aid of sound, or facial expressions, "meaning" takes on a whole new meaning.

> As teachers, we are always conscious of the facial expressions of our students, their ups, downs, mood swings, vocal expression, passion, etc. These are our tools for connecting! Without them, the feeling of connectedness is gone. It is difficult to make a personal connection with a screen, no matter how friendly, or warm the prof is in word! I love the flow and ambiance of the classroom, and that element is difficult to recreate. It is a very STERILE and matter of fact arena, that, although work oriented (very few distractions), is not enjoyable. Tis [*sic*] quite boring to drink coffee by ones self while sitting in a crowded, "virtual", classroom. It is also difficult to develop a feeling of truly being part of a cohort, or community of learners. You feel displaced, alone, outside of things, out of the loop.

The lack of face-to-face contact is an issue that presented challenges as one participant remarked:

> It is difficult still to get used to not having face to face contact. I am the sort of person who would rather walk to the other end of the building and talk to someone rather than write a memo. You learn much more speaking face to face.

Another participant also remarked on the lack of opportunity for real interaction over the web:

> The only issue I have with this medium vs F2F is the lack of genuine interaction. The F2F has real, live, people who are in the room, with whom you make eye contact, see the facial expressions, get the body language.

Along with this lack of interaction is also the perception of a lack of opportunity to form deeper relationships with other learners:

> There is also the issue of personal contact. I am an interpersonal person in that I LOVE people, I love crowds and parties and chat and interaction. A classroom allows the building of relationships with humans, which doesn't seem to develop to any depth in a Web Based classroom. Yes, we get to interact with a group of students, faceless other than a pic, and we get to exchange files. But...there are no after hours discussions over Tim's, or lingering in corridors for a few final comments. The passion is not there, if you can understand what I mean. It is too sterile.

One participant found the opportunities to socialize were limited and that "any posting of a social nature was frowned upon". Another participant commented that although "most professors don't give them [social postings] credit they are extremely beneficial in bringing a since [sic] of group cohesiveness". The following suggestion was made by a participant with regard to socializing during courses:

> I think that the issue of the social aspects can be somewhat overcome if there was a section in each course to allow for some open discussion of a social nature. This could even be encouraged by the instructor.

On the same topic, another participant remarked that "Elements need to be introduced which make the look and feel of the interface more like a classroom. The introduction of web cam, if bandwidth is not an issue, would be a step in the right direction".

The "opportunity to discuss non-course stuff" was identified by one participant as the "one component that was missing from many of the courses." He articulated his thoughts on the subject in the following excerpt:

> Those courses that included posts about marriages, births, moving, graduations, vacations, and other personal topics tended (for me at least) to be more interesting, more fun, and more beneficial in many ways, including academically, than those that were relatively impersonal and "stayed on track" all the time.

Another participant commented on the same issue, indicating how he "missed the classroom and the social aspect of learning in the same physical location and same time as others". The web-based medium "needs something to bring the students together as a group, or a community" as one participant commented. He remarked further on his own experience as a teacher in a web-based environment:

> A manner to discuss issues that may not be related directly to academics. To feel that there are people in the institution that are there to respond to your concerns and needs. Something to soften the sterile environment that we call a classroom. I teach in this environment every day, and I try as much as possible to allow social interaction for a few minutes in each class. We utilize voice through a virtual classroom, and I insist on a biography plus picture that I post on a web page in the course. The students get to see each other, and they get to "chat" as if they were in a face to face situation.

The lack of face-to-face contact affects, not only the students communicating with each other, but also the ability of students to communicate with instructors:

> I miss the social element and I miss the face-to-face with the professor. I've had situations arise before where I have had to get on the phone and try to explain my reasoning for doing something or other or explaining why I used this as opposed to that and it has been difficult. I know things could have ran [*sic*] much smoother if I

> cold [sic] have walked into his/her office and pointed to something and said, Here, take a look at this.

Another participant commented that the web-based medium has "eliminated the help of my verbal skills" and, as a result, "it hasn't been easy to ask a question to an instructor".

Some participants discussed the idea that something was missing because of the web-based medium. One participant commented, "I often feel like I'm missing out on personal experiences of the prof and students" in regard to the lack of face-to-face contact in a web-based medium. Another participant commented, "It makes me crazy when the prof posts class lecture notes - I'm always wondering what questions the class might ask and what expereinces [*sic*] they may share".

4.5.2 Interaction Online

The second sub-category in the category *Lack of Social Interaction* is entitled *Interaction Online.* The content of this sub-category is synthesized below:

Table 4.13 Synthesis of Sub-category: Interaction Online

Interaction Online	
Feelings of being an outsider in terms of being acknowledged	As a distance student, feel cut off and isolated
Feelings of isolation affects participation, motivation and attitudes	Feelings of being displaced, alone, outside of things, out of the loop
Decreased access to assistance for day-to-day problems and questions	Exclusion from the discussion conversation generated feelings of being an outsider
Found first course confusing and very lonely	Found learning at home to be isolating

The sub-category *Interaction Online* groups together those statements containing keywords including: *attitude, access, lonely, isolated,* and *exclusion. Interaction Online* was chosen as the title for the sub-category because it best represented the relationship

between these keywords and spoke to barriers and challenges associated with interacting and isolation that participants perceived they encountered when learning in a web-based environment. One participant compared his feelings of isolation in a web-based setting to a traditional classroom experience in the following quote: "The online course experience can feel isolating. Although it's certainly possible to go through a course in a traditional setting without making any connection with classmates, it's easier to do this online". Another remarked, "The feeling of isolation and of being an outsider is one issue to which I can relate". Another participant indicated that he "experienced feelings of isolation, especially at the beginning". Another commented on the impact these feelings can have on learners and "that so many people find it very lonely and drop out". One participant indicated how he "only felt like an outsider when [he was] supposed to form groups". The sense was that once he had participated in a few more courses, it would become less difficult.

Some participants perceived particular factors such as the presence of "cliques", being from "out of province", and the occurrence of group meetings "in person" contributed to their feelings of isolation while taking courses. Two of these factors are elaborated on in the following excerpts:

> Those who have worked together in other courses tend to stick together, although, I believe it is not an intentional act of segregation. Familiarity is a powerful motivator when you enter a "classroom". People flock together because of human nature, which means that those of us who are "new" to a course, sometimes get ignored.
>
> This happens especially when you [are from] out of province. It seems as if most know each other with a few exceptions. They seem to respond to the ones they know, so you are sometimes not sure if your posting was off topic or not.

Being isolated from other learners can have an impact on a student's individual skills:

> At times yes, it can be isolating. I would say as well I do best when presenting assignments ; I am a good speaker and less of a writer so for me I would probably do better in a face to face scenario. I am a people person so I do miss the interaction.

In addition to missing the interaction, a participant commented that feeling that "we are alone in our views; that we are the only person experiencing certain events and circumstances" can make students feel "cut off and isolated".

4.6 Summary

The purpose of this chapter was to present a summary of the findings obtained through the processes of data collection and analysis. The findings presented in this chapter represented a synthesis of participants' perspectives as they were communicated in the study through the online discussion, questionnaire, and interviews. In this chapter, the contents of five categories and subsequent twelve sub-categories that emerged as the participants shared their perceptions of the challenges of learning in a web-based environment were presented.

The five categories included:

- Issues in the Use of a Discussion Forum
- Learning to Learn Online
- Involvement/Role of Instructor
- Need for Support
- Lack of Social Interaction

The chapter was organized by category, and within each category, sub-categories were presented. Within each sub-category, the perceptions and experiences of the participants were presented. Actual quotes from the discussion, questionnaire, and interviews were included in the presentation of findings.

The challenges and barriers associated with the use of the discussion forum are presented in the category *Issues in the Use of a Discussion Forum.* The study's findings are grouped into two sub-categories. The first sub-category, *Student Experiences in Text-based Asynchronous Communication* articulates challenges participants perceived they encountered when communicating in a text-based asynchronous environment. Some of the challenges identified by the participants included: domination of the discussion forum by small groups of students, feelings of exclusion from the discussion, intimidation by the level of the discussion, misinterpretation, clarification issues, and lack of non-verbal cues. The second sub-category under the category *Issues in the Use of a Discussion Forum* was entitled *Posting Demands* and presented barriers and challenges experienced by participants when posting to the discussion forum. Some of the challenges identified by the participants included: forced postings, keeping up with large quantity of posts, long postings, and pressure to post.

The second category, *Learning to Learn Online*, presented findings related to learning to learn online. The first sub-category in this category was entitled *Technical Challenges* and spoke to the technical barriers and challenges that participants perceived they encountered when learning online. Some of the challenges identified by the participants included: the functionality of WebCT™, use of the chat or synchronous

communication feature, access issues, typing challenges and technical ability and skills. The second sub-category in this category presented participants' experiences in the area of demands on web-based learners and was entitled *Demands on Learner*. Some of the challenges identified by the participants under this sub-category included: new responsibilities and roles of web-based learners, time consuming nature of web-based learning, need to think at a "higher level", and a prolonged absence from learning. The third and final sub-category, in the category *Learning to Learn Online*, presented the experiences of participants in web-based group work and was entitled *Web-based Group Work*. This sub-category presented such challenges as: time consuming nature of web-based group work, attempting to join or form groups, scheduling issues, time-zone issues, feelings of being ignored, and group size.

The third category, *Involvement/Role of Instructor*, presented the challenges and barriers articulated by participants that related to the involvement and role of instructors. The first sub-category in this category, *Feedback from Instructors*, presented participants' perceptions regarding feedback they received from instructors. Some of the challenges identified by the participants under this sub-category included: lack of feedback, timely feedback, and manner of instructor feedback. The second sub-category in this category presented findings related to challenges and barriers participants perceived they encountered regarding interaction with instructors and was entitled *Interaction with Instructor*. This sub-category presented such challenges as: lack of instructor interaction, lack of instructor direction and guidance, instruction facilitation, instructor clarification, and instructor relationships. The final sub-category in the category

Involvement/Role of Instructor was entitled *Instructor Technology and Web-based Teaching Skills.* Barriers and challenges associated with the instructor's ability to use the technology and to teach online were presented in this subcategory. Some of the challenges identified included: instructor's lack of familiarity with technology, lack of buy-in or trust in the technology, lack of online teaching skills, high technological expectations, and lack of instructor training.

Need for Support was the title of the fourth category. This category grouped together those statements that were related to the perceptions participants held on the availability of support. This category was made up of two sub-categories; the first one entitled *Support for Students.* This first sub-category spoke to the support needed by online learners. Some of the challenges and barriers presented in this sub-category included the need for support, access to support, availability of support, and instructor support. The second sub-category in this category was entitled *Support from Institutions.* The challenges and barriers perceived by participants as they related to support for institutions were presented in this sub-category. Some of these included the availability of year-round support, access to knowledgeable staff, level of service, and need for instructor training.

The final category, *Lack of Social Interaction*, presented the challenges and barriers articulated by participants related to the lack of opportunity for social interaction when learning online and was grouped into two sub-categories. The first sub-category, *Communicating Online*, spoke to the challenges and difficulties participants perceived they experienced communicating online with fellow students and instructors. Some of

the challenges identified included the lack of opportunity to interact and socialize, lack of face-to-face contact, lack of opportunity to form relationships, and limited communication with instructors. The second sub-category in the category *Communicating Online* was entitled *Interaction Online*. This sub-category grouped together those issues associated with interacting and isolation that participants perceived they encountered when learning in a web-based environment. Two of the challenges identified included feelings of isolation, and the presence of "cliques".

The next chapter will focus on a discussion of the findings presented here through a process of analysis and interpretation. The focus will be on understanding the significance of the findings with the goal of developing an understanding of their relationship in a context of web-based learning. This discussion of the findings will also examine if the findings obtained in this study are congruent with the data presented in the literature, what, if any, new knowledge has been gained and how this new knowledge can be used in the future.

Chapter Five

Discussion of the Findings

The last chapter presented a synthesis of the findings comprised of statements extracted from the discussion, questionnaire, and interviews. The statements were grouped and presented within sub-categories according to a process of data analysis described in chapter three. The sub-categories presented the statements grouped as a result of identifying patterns in keywords. The purpose of this chapter is to present an interpretation and analysis of the findings in relation to their significance and implications and in relation to the purpose of the study as articulated in chapter one.

This phase of the analysis involved the identification of themes derived from pattern analysis across category/subcategory. This resulted in the development of the following three themes.

- New Forms of Communicating
- New Forms of Learning
- New Forms of Interacting

This chapter will discuss these themes and their significance in the context of web-based learning. In addition, the discussion of the findings will examine the degrees of congruency with the literature reviewed in chapter two. Finally, suggestions for further research and implications for practice will be discussed. The following sections of the chapter provide a discussion of the three identified themes.

5.1 New Forms of Communicating

This theme regroups statements from the sub-categories:

- Student Experiences in Text-based Asynchronous Communication
- Technical Challenges
- Web-based Group Work
- Communicating Online
- Interaction Online

The commonality between the sub-categories listed above is that they contained statements articulated by participants pertaining to their experiences when communicating in an online course environment.

This theme refers to the transition from face-to-face forms of communicating with which participants were already quite familiar to web-based forms of communicating with which they were unfamiliar. These new forms of web-based communicating included: asynchronous communication in the discussion forum and by email, and synchronous communication in chat. This transition involved learning to communicate in a text-based only environment where there was no physical contact between the students. Therefore, while communicating, students were unable to see each other. As well, asynchronous communication did not take place in real time. Learners making this transition were not able to use many of the communication tools and skills they were accustomed to using when communicating face-to-face.

Participants expressed difficulty with adjusting to learning without being physically present with other learners or instructors in a web-based environment. Some perceived

this lack of physical presence and the methods of communication available had limited their ability to communicate and their ability to effectively convey information and emotions. Some participants perceived a sense of being disregarded or acknowledged and felt that being disregarded could have an effect on their perceptions of themselves as learners. Participants described how, in a web-based environment, they had experiences unlike those they were used to in a traditional face-to-face setting. As a result, some described feeling isolated when they were unable to participate fully as students because of the limitations they experienced when communicating with other students and with instructors. As online students, some participants struggled to be heard through a text-based medium and perceived that other students ignored or misinterpreted their postings. They remarked that it seemed much easier for students to ignore other students within the discussion and chat. Some participants expressed frustration due to the lack of acknowledgement or recognition they perceived they experienced when attempting to communicate with other students and with instructors through the use of new tools. They were able to post to the discussion forum or the chat but posting did not always guarantee a response or acknowledgement. Other participants noted that in such situations they didn't know why other students were not responding to them and found this frustrating.

Some participants expressed frustration with what they perceived as the inefficiency of the new forms of communicating available to them. They found it took much longer to express their thoughts and ideas because of the reliance on a text-based medium. Some described experiencing stress and discouragement when using asynchronous and synchronous forms of communication because of the extra time it required on the part of

a student. Other participants described feeling overwhelmed with the demands of their online course and the time commitment required to keep up with postings and replies. Some participants described the problems they encountered in regard to information overload and how difficult they found it to keep up with the large number of postings and the demands of posting for marking purposes.

Some participants expressed frustration with what they perceived as a lack of opportunity for socializing in a web-based environment using these new forms of communicating. They perceived that this lack of opportunity to talk about non-course topics impacted on the development of relationships among learners and instructors and contributed towards feelings of isolation among students. These new forms of communicating also, at times, generated a feeling of a lack of confidence and apprehension in some participants. Others described feelings of inadequacy and intimidation when participating in the text-based discussion.

Some participants also expressed the difficulties they encountered in using the new communication tools available to them on the web and found the functionality of the WebCT™ learning platform frustrating. They expressed how this lack of functionality with particular features impacted on their ability to communicate as effectively or as efficiently as they would have wanted. The use of the chat feature in WebCT™ as a new form of communication also presented challenges to some participants. They articulated that they found this form of synchronous communication much more time consuming compared to traditional face-to-face communication, and differences in time zones at times made this form of synchronous communication inconvenient. Other participants

described problems they had regarding connectivity and accessing course websites. These problems also contributed to the difficulties some participants experienced as they transitioned to new forms of communicating and were identified as challenges in web-based learning.

In previous studies involving online learners, issues associated with dealing with new forms of communicating were a common theme. In their 1996 research, Purnell, Cuskelly, and Danaher looked at ways of improving the quality of delivery of distance education. One of the areas of concern identified by participants in this study was that of contact and communication with lecturers and tutors given the distance nature of the program. Participants in Potter's (1998) study also emphasized difficulty of communicating with instructors. In Wiesenburg and Hutton's (1996) study of computer-mediated communication, participants identified the lack of human contact and learning to communicate without visual cues as one of the challenges they encountered. The lack of visual and aural cues was also identified as a challenge along with fragmented classroom discussions in Burge's (1994) study of computer conferencing.

In the findings of their research into graduate learning in a web-based environment Kochtanek and Hein (2000) identified a number of barriers, one of which included the limitations surrounding the use of asynchronous methods of communication. In their conclusions, they noted the need for students and instructors to have particular skills and experience in order to sustain a distributed learning experience. In Bishop's (2002) account of her experiences as a web-based learner, she noted the difficulties she encountered with communicating through the use of a discussion forum including dealing

with large number of postings, the inability to read body language, and problems associated with composing postings. In Howland and Moore's (2002) study of online learners, they found that although some students had positive results communicating through an asynchronous discussion board; others disliked the discussion board activity and found the absence of face-to-face contact with their instructor had an impact on their experiences. Distance students were asked to identify learner obstacles in a recent needs assessment conducted by the School of Continuing Education (2001) at Memorial University of Newfoundland. One of the obstacles identified by participants and congruent with a portion of the findings of this study was that of isolation experienced by learners when learning from a distance.

In addition to research conducted in the area of distance and web-based learning, the findings of this study also produced findings congruent with research conducted - specifically on the use of WebCT™. In a study conducted at Ryerson University, Freeman (2000) focused on barriers students encountered when using WebCT™. The barriers described related to student difficulties relating to the consistency in the use of WebCT™ tools, the location of the tools, and the posting of materials.

5.2 New Forms of Learning

This theme regroups statements from the sub-categories:

- Posting Demands
- Demands on Learner
- Support For Students

- Support From Institutions
- Instructor Technology and Web-based Teaching Skills

The commonality between the sub-categories listed above is that they contained statements articulated by participants pertaining to their experiences when learning in an online course environment.

This theme refers to the transition from forms of learning with which participants were already quite familiar to forms of learning with which they were unfamiliar. These new forms of learning required that students learn in a virtual, web-based environment that relied mainly on asynchronous communication methods. Participants had to adapt to learning that was not based on real time contact with other students and the instructor. In this context, participants referenced the need for them to adapt to new skills and responsibilities as learners. Some participants articulated that, as web-based students, they now needed to be familiar with the technology, the web-based delivery system, and the tools available for them to communicate.

Other participants remarked on how their traditional role as a learner had changed, and that, in a web-based environment they had to become more responsible, independent learners, who are actively involved in the learning process. Some also held the perceptions that they were not only responsible for themselves but also conscious that their level of participation had an impact on other students as well. In order to manage the amount of work involved in learning online, some participants described the need for online learners to develop the skills needed to manage this workload and to manage their time effectively.

Other participants identified the need to think more deeply as a learner in a web-based program as compared to their experiences in a face-to-face learning situation. These participants attributed this to the need to stay abreast with the discussion, the level of the discussion taking place in the forum, and the fact that their responses were in text "for all to see", as opposed to verbal responses. They remarked that, as students, it required that they put more thought and effort into their postings and responses.

In order to participate in these "new forms of learning", it was essential for students to possess a certain level of technical skill. Some participants who did not have strong technical skills described the stress they experienced and the impact it had on their learning experience when expected to perform beyond their ability level. They described their frustration when they encountered problems with the web-based technology, various software, or connectivity problems. In this regard, other participants articulated a need for an increased capacity, range, and quality of the technical support provided by the institutions. Other participants also remarked on the need for an increased level of general support and awareness on behalf of institutional staff in regard to web-based students.

The need for online students to adapt to and become comfortable with the nature of web-based learning was also expressed by some participants. A lack of adaptation or comfort level could present difficulties as students transitioned from face-to-face methods of learning to a web-based format. This could result in a period of adjustment for the learners - particularly those who were not accustomed to learning independently, and

those who did not possess strong technical skills or had been away from learning for an extended period of time.

Some participants expressed that the lack of a structured classroom, scheduled classes, and being physically interactive with other learners and the instructor could present difficulties. This transition to a web-based, text-based medium resulted in some participant's expressing difficulty with what they perceived as a lack of feedback from instructors. These participants remarked that the lack of feedback and, at times, the lack of timely feedback impacted on their learning experience and resulted in frustration and confusion. This frustration may stem from participants being accustomed to attending classes in-person and having regular physical contact with their instructors so that when they asked a question, they could most often receive immediate feedback.

Other participants remarked that, in addition to students needing a particular level of technical ability to be online learners, instructors who taught online courses should have a similar level of technical skills. These participants perceived the instructor's technical ability influenced their confidence as a web-based learner and had a direct impact on their ability to adapt to this new form of learning. The need for instructors to have familiarity with the technology and the tools associated with web-based learning and a commitment to this new form of learning was articulated as being very important to the participants' learning experience.

In earlier research focusing on distance and online learners, issues associated with dealing with a new form of learning were a common theme. The findings of previous research in the area of distance education conducted by Purnell, Cuskelly, and Danaher

(1996), Weigand (1999) and Carr, Fullerton, Severino and McHugh (1996) were congruent with some of this study's findings. The congruencies identified between these studies and this study included the concern regarding timely feedback and technical support, the disadvantage that distance programs required more work on the part of the student, the fact that students missed the structure of a face-to-face classroom, and the barriers of family and work responsibilities and time parameters. One of the main recommendations of the Purnell, Cuskelly, and Danaher study was the need for an improved range of learner support services. Congruencies in the area of learner services also existed with Potter's study into student perspectives on distance education support services. Among her recommendations, she included the need for universities to conduct periodic and regular studies of their distance learners, to develop and deliver effective support services for distance learners, and to properly prepare distance-course developers and instructors.

When compared to earlier research that focused on web-based delivery methods, there were also some areas of agreement with the findings of this study. The findings of the study by Ross, Crane, and Robertson (1994) that targeted access problems in a graduate online course reported students noting difficulties with the technology and the lack of documentation on the system. The authors also noted a lack of user understanding of the technology. In other research by Wiesenburg and Hutton (1996), student participants identified frustration with technical problems, the amount of time involved in learning online and the need to be self-directed learners. In keeping with the findings of this study, Burge (1994) also identified student barriers associated with lack

of immediate feedback and the need to deal with large amounts of information. In a similar study by Kochtanek and Hein (2000), participants also identified similar difficulties in terms of adjusting to the concepts of distributed learning, time management issues, and technological barriers. Participants in Hara and Kling's (1999) case study and the School of Continuing Education (2001) needs assessment shared frustrations similar to those described in the findings of this study. They included the following: lack of feedback and timely feedback from instructors, lack of direction, technological problems, difficulty contacting professors, web access problems, time management issues, and work commitment issues. The findings of this study also show congruencies with Howland and Moore's (2002) findings. Some participants in their study reported the need for them to be more independent learners, while others expressed feelings of being overwhelmed when required to rely on only themselves. Participants in Howland and Moore's study also expressed difficulties with time management and technical issues.

When compared to studies by White (2000) and Freeman (2000) that looked specifically at the use of WebCT™, similarities existed in the area of the time-consuming nature of downloading information, frustrations with navigating through course site and inaccessible websites, feelings of being overwhelmed with large quantities of information, technical challenges with the WebCT™ system, lack of student support, and poor organization of course information.

5.3 New Forms of Interacting

This theme regroups statements from the sub-categories:

- Web-based Group Work
- Feedback from Instructor
- Interaction with Instructor
- Support From Institutions
- Student Experiences in Text-based Asynchronous Communication
- Instructor Technology and Web-based Teaching Skills

The commonality between the sub-categories listed above is that they contained statements articulated by participants pertaining to their experiences when interacting in an online course environment.

This theme refers to the transition from forms of interacting with which participants were already quite familiar to methods of interacting with which they were unfamiliar. This theme represents the challenges and issues participants encountered as they adjusted to new methods of interacting in a web-based environment. The new forms of interaction identified pertain to interaction between students in group-based activities in chat and in the discussion forum, and interaction between students and instructors within the context of the course. These new forms of interacting required that the participants adapt to interacting with other students and with their instructors in a virtual, web-based setting. This theme also examines the need for guidelines and structure to increase the level of interaction in the online medium as articulated by some participants.

One area of online interaction that some participants identified having difficulty transitioning to was the assignment of group work within web-based courses. These participants noted issues with the methods used to form groups within courses and the

difficulties they encountered attempting to form or join online groups. In addition, other participants described challenges involving the size of groups and the differences among group members in terms of the times zones in which they lived. Some participants felt that the instructor should play a more visible role in establishing groups and controlling group size, and when assigning groups, should take into consideration potential problems associated with time zone issues in terms of scheduling meetings and meeting deadlines. Web-based group work is an area of interaction that could benefit from the establishment of guidelines by the instructor or institution and the development of structure in order to make it more effective. Some participants remarked on the time-consuming nature of web-based group work and the difficulty they encountered in keeping up with the conversation in a text-based medium. The need for particular skills was identified by some participants; namely, the need for good typing skills to keep up with the online conversation.

In the adjustment to the new form of interaction, some participants had difficulty with what they perceived as a lack of feedback and interaction from instructors. Other participants remarked that their experiences varied with instructors. They remarked that some instructors were better than others at providing feedback. Other participants described how a lack of instructor feedback could have the effect of creating uncertainty among participants. The need for guidelines to be established was expressed through some participants' remarks regarding the type and degree of feedback they received and the level of interaction they perceived they received from various instructors. Without timely or specific feedback from the instructor, other participants found they were

uncertain as to their progress in the course and some remarked how this impacted on their sense of confidence as learners.

Some participants also remarked that a number of their instructors in web-based courses lacked the skills to effectively interact with their online students. They articulated the need for institutions to provide instructor training in the areas of communication, facilitation, interaction and web-based course setup and delivery. Other participants found that instructors were, at times, negligent in conveying course information, keeping course resource links up-to-date, and unclear regarding course expectations. They perceived the need for instructors to play a stronger facilitation role in the discussion forum, to clearly define its purpose, and to keep the discussion on track and in control. Other participants described the effect that a lack of instructor presence had on them as learners. These descriptions included feelings of stress, isolation as a learner, and the need to, at times, develop their own interpretation of course requirements.

The perception of a lack of interaction was not only with instructors but also with fellow students.. Some participants described situations in courses when a small group of students or "clique" dominated the discussion forum. Other participants described times when there was no clear direction to the discussion. They articulated the need for the instructor to establish guidelines and structure, to allow for the discussion forum to be effective, and to serve the needs of the learners. Such situations did not allow full participation or interaction of all students and left some participants feeling frustrated. Because of the nature of the web-based medium, other participants often found

themselves feeling alone as learners because of the lack of opportunity to interact with other students and instructors.

In other research focusing on distance and online learners, issues associated with dealing with new forms of interacting in a distance or web-based learning environment were a common theme. Weigand's (1999) study of distance learners in a university telecourse program produced findings congruent to some of the findings involving interaction produced in this study. In Weigand's findings, participants noted the lack of interaction with fellow students and instructor as a disadvantage. Study participants also remarked this lack of interaction caused them to feel unsure of their academic progression in the telecourse. The findings of earlier research into web-based course delivery were also in agreement with a number of findings produced in this study. One of the challenges described by participants in Burge's (1994) study of M.Ed. students in a web-based program was the difficulty they encountered when attempting to work collaboratively using computer conferencing or asynchronous communication. Bishop (2002) also noted the challenges she encountered with online collaborative assignments. Such assignments required more time and effort and there were problems associated with differences in time zones and language issues with international students. Congruencies with the results of this study can also be found with Howland and Moore's (2002) study of online learners. Some participants in this study noted that the lack of an instructor presence led them to feelings lacking confidence as learners. Conrad (2002) examined the issue of online learning communities in her study of involving seven adult learners.

She found that students differed in their view of who was responsible for creating the sense of community in an online course - either the instructor or the learners themselves.

5.4 Implications for Practice and Research

There are several implications for practice and research resulting from the findings of this study. In keeping with the stated purpose of this study, these implications focus on the use of a web-based medium for delivery of courses and programs. Using this new medium has significant implications for the students' learning via web-based courses. This study focused on students' perceptions of barriers and challenges. However, their perceptions also have implications for the institutions offering web-based courses and programs, as well as for the instructors of these courses. The following section presents these implications.

Students may need to acquire a knowledge and awareness of the skills required to learn online. In order to be able to participate effectively as online learners, potential students need to be aware of the required technical prerequisites and determine if they meet them, if they require further training, or if perhaps, they are suited to learning using this medium.

Individuals interested in pursuing web-based learning may benefit from a level of typing ability that will allow them to comfortably participate in a text-based medium. More importantly, students can benefit from an awareness of the nature of web-based learning, the time commitment it demands, the new roles involved, and the new forms of communication and interaction that occur in this type of learning environment. As web-

based learners, students may need to be capable of learning independently, directing their learning, and taking responsibility for their own learning more than what might typically be expected in a face-to-face environment. They may also need to be able to think more deeply and to be able to contribute effectively to course discussions and content. They may be required to be more active and involved learners. The onus may lie on the institution to provide students with these skills through training programs designed for those interested in becoming web-based learners.

Once engaged in web-based learning, students must be able to deploy these skills and adapt to the nature of the medium. In particular, they must become comfortable with communicating through asynchronous and synchronous methods and be able to adapt to and adjust to learning in a text-based environment without the physical presence of their instructor and classmates. Students may need to become accustomed to a learning environment that relies on alternative forms of interaction to compensate for the lack of social presence.

Like students, instructors may need to be aware of the different role that they will play in a web-based versus face-to-face learning environment. As well, like students, instructors will need to develop specific pedagogical and technical skills related to web-based learning. As with the case of students, the onus may lie on institutions to provide these skills to instructors through teacher training programs. Instructors may need to recognize the challenges presented by this medium not only for them but also for their students. Such skills might relate to facilitating and moderating a discussion and communicating in a web-based environment. In terms of technical competencies,

instructors will need to achieve a level of skill that meets or exceeds the technical prerequisite laid out for the program or course. In addition to technical ability, instructors may also need to develop a trust in the technology as they transition from the more familiar face-to-face environment to the web-based environment. Institutions can train instructors to operate these systems and instructors can learn to make best use of the potential of the technology in order to provide students with a well-designed and delivered course.

Another implication that can be drawn from this study is the need for instructors to consider the medium when they are designing their courses and to be aware of the nature, limitations, and possibilities inherent in a web-based learning environment. Instructors will need to take issues such as medium limitations and geographic location of students into consideration when designing their courses to include such activities as web-based group work. In this transition from traditional face-to-face learning to web-based learning, instructors may need to be aware that approaches that worked in face-to-face environments may need to be adjusted or refined in order for them to be effective in a web-based situation.

Instructors may also need to become more knowledgeable and aware of students' needs in web-based learning. The findings of this study indicate that some students perceive a need for increased instructor presence, interaction, and feedback in web-based courses. As part of their new role as teachers in web-based courses, instructors may need to play an active part in the web-based learning experience. Given the virtual nature of the medium, it may be even more important than in a face-to-face situation for instructors

to be accessible and available to assist students and respond clearly and promptly to their questions. Expectations may need to be clearly stated, as might evaluation methods, a clearly articulated purpose for the discussion forum and the criteria for posting. Timeliness in providing new information or course changes may also represent an important behaviour for instructors. As part of their new role, instructors may need to play an active part in the discussion forum, monitoring, guiding and contributing when required. Furthermore, instructors who teach online will need to be committed to the ideology of web-based learning and convey that commitment to their students by making their students'online learning experience as effective as they can by communicating and interacting effectively and providing opportunities for students to communicate and interact on a personal level.

Another implication for practice relates to institutions' offering web-based programs. Institutions may benefit from an examination of their student support systems to determine if they effectively meet the unique needs of web-based learners. Support systems are needed for web-based learners that provide adequate, year-round, timely, technical, and administrative support. In addition, institutions may wish to consider providing additional or supplementary supports to people returning to school after an extended absence. Program guidelines and requirements may need to be reconsidered to ensure that they meet the needs of those learning in a web-based environment or if they need to establish different guidelines for programs delivered online. Institutions may also need to increase their level of adherence to the technology prerequisite requirements, which would then allow for a more equal level of technically prepared students able to

meet the requirements of learning in a web-based environment. An associated implication is the need for institutions to provide students with a consistent way in which they can provide an evaluation of their web-based learning experiences.

In addition to re-examining guidelines and support systems for students, institutions may also wish to examine the support they provide to instructors teaching or considering teaching in this new medium. The findings of this study indicate a need to provide web-based instructors with support in terms of technical training and online communication and facilitation training. Such support might be provided by the institutions responsible for delivering the courses.

Finally, when choosing an e-learning system for the delivery of web-based courses, system functionality and issues related to student and instructor usability, communication and interaction would need to be considered. Frequent and ongoing evaluation and assessment may be needed of the requirements and preferences of students in relation to the e-learning systems used to deliver their web-based courses.

In conclusion, one of the more important implications arising from this study is the need to build and develop a better understanding of what it means to be a learner in a web-based environment. This understanding cannot be developed in isolation involving just students but has to engage all the elements that have an impact on the learner's experience. These elements include: the institutions offering the courses, the web-based learning systems used to deliver the courses, and the instructors teaching the courses.

Implications for further research involve a number of issues that arose from this study. One of these implications relates to the use of discussion forums in web-based

learning as an area for future study. The findings of this study identified challenges that learners encountered in terms of communicating, learning, and interacting through the use of asynchronous discussion forums. It may be worthwhile to conduct further research into student experiences in web-based learning environments and their perceptions of their experiences. In addition, student experiences and perceptions in the use of synchronous methods of communication is another potential area for future research. Associated with this are students' experiences with group-based work in web-based learning and the difficulties identified when required to use synchronous communication to participate in such activities. Further research focusing on the use of synchronous communication, web-based group work experience, students' perceptions, and ways to improve these experiences is needed to advance the use of these types of activities in web-based courses.

The findings of this study also indicated the development of a new role for learners in web-based programs as they transition from more traditional face-to-face modes of learning. Along with this new role for learners is an identified need for learners to develop new skills in order to learn online. These findings present an implication for future research that would more deeply examine the role of the web-based learner and the skills they need to learn in such an environment. The study did not present data on an individualized basis nor did it examine the individual learning styles and characteristics of each participant. Instead, the data were aggregated for the group as a whole. An area for future research might be to examine how different learning styles and other variables come into play in determining the nature of learners' experience.

Participants in this study were students in a web-based graduate program that used WebCT™ as the e-learning system. Some of the findings of this study indicated that some participants experienced difficulty with the functionality of some features of WebCT™. As a result, implications for further research into the use of WebCT™ in web-based programs and the perceptions of students who use this system to learn online are presented in this study.

One area of web-based learning that may benefit from further research is the availability of institutional support for web-based learners and students' perceptions regarding the support available to them as learners. In addition, research may also be required to examine the role of the instructor from both an instructor and student perspective and to determine what skills and training instructors need to teach online. The scope of this study did not allow room for comparison between the experiences of male and female participants. A future study might be conducted of web-based learning using gender as a criterion for comparison of experiences between learners.

The research presented in this study did not attempt to correlate an individual participant's experience as a distance learner with the nature of his or her learning experience. No comparisons were made between the numbers of online courses an individual participant had taken with their perceived experiences as an online learner. Further studies that link learners' experiences with their knowledge and level of comfort with online learning are needed. Such potential research could examine the question: Do people who have taken several online courses actually tend to have a better learning experience?

5.5 Conclusion

The purpose of the study, as presented in chapter one, was to identify from the learners' perspective some of the barriers and challenges in web-based graduate education courses in order to gain insight into the types of experiences this new type of learning presents to students. This study proposed to investigate the following questions:

1. What are some of the barriers and challenges identified by students?
2. What is the nature of the barriers and challenges encountered by students?

It is anticipated that the findings of this study will add to the existing body of knowledge in the area of web-based learning. In addition to collecting data on barriers and challenges encountered by learners in the context of today's web-based environment, this study also made a comparison between identified barriers and challenges from earlier research to the findings and conclusions reached in this study. The study examined similarities that may exist in the barriers and challenges cited in previously conducted research in the area of web-based learning. In addition, this study made comparison with research conducted on distance learning. This research provides important insight into this phenomenon now that web-based learning has become more common.

A qualitative methodology was used in this study. Data collection took place over three phases and involved 20 participants. The data were collected entirely through the use of web-based technology making use of discussion forums, online questionnaires, and synchronous chat. The methodology was developed taking into consideration ethical, validity, and reliability issues. Analysis of the data was ongoing throughout the data collection phase, which each phase being used to inform the next phase. Following

the final stage of data collection, the entire set of data collected from all three phases was re-examined as a whole. This analysis allowed the researcher to group the data into categories based on keywords. Subsequent analysis of the categories led to the creation of sub-categories. The data were then synthesized according to a structure of categories and subcategories.

A summary of the findings obtained through the processes of data collection and analysis were presented by way of five categories. The findings represented a synthesis of participants' perspectives as they were communicated in the study through the online discussion, questionnaire, and interviews. The contents of five categories and the subsequent twelve sub-categories that emerged as the participants shared their perceptions of the challenges of learning in a web-based environment were presented. The five categories included:

- Issues in the Use of a Discussion Forum
- Learning to Learn Online
- Involvement/Role of Instructor
- Need for Support
- Lack of Social Interaction

The study concluded with a discussion of the findings and implications for practice and research. The findings were discussed through the presentation of three themes focusing on understanding the significance of the findings and of their relationship in the context of web-based learning. These themes included:

- New Forms of Communicating

- New Forms of Learning
- New Forms of Interacting

The findings of the study were discussed within each theme from the perspective of transitioning from face-to-face forms of communicating, learning, and interacting with which participants were already quite familiar to web-based forms of communicating, learning, and interacting with which they were unfamiliar. The discussion of the findings also examined the degrees of congruency of the findings of this study with the findings of previous research.

The implications for students looked at their new role as learners in a web-based environment, the need for them to have particular skills to learn online, including technical and personal skills, and the adjustment to the transition to online learning. Implications for instructors included awareness of their new role, the need for technical and facilitation skills, an understanding and commitment to the nature of web-based learning, an inherent trust in the technology, and an understanding of student needs in web-based learning. A number of implications for institutions were also discussed. These include the need for institutional student support systems to be able to effectively meet the needs of web-based learners, the need to ensure an adherence to program prerequisites, the provision of a means for students to evaluate web-based courses and programs, the provision of effective and appropriate training to web-based instructors, and the need to play a more active role in the evaluation of learning platforms.

Implications for further research were also discussed. These included such areas as: use of asynchronous discussion forums, learners' experiences in web-based courses,

student experiences using synchronous methods of communication, web-based group work, the role of web-based learners and the skills needed to learn online, use of WebCT™, institutional support, the role of the instructor in web-based learning, and comparative studies that would examine the students' experiences and perceptions with their level of online learning expertise.

The nature of the challenges and barriers encountered by the participants in this study were shaped by the new forms of communicating, learning, and interacting they encountered as web-based learners. Through their participation in this study, the participants provided insight into their experiences as they transitioned from traditional face-to-face environments to web-based learning environment. They also provided insight into what web-based learners require on the part of instructors and institutions to support this transition. This study presents evidence of issues related to adaptation and transition from more traditional forms of communicating, learning, and interaction to new forms of communicating, learning, and interacting.

In keeping with the stated purpose of this study, the implications for practice and research focused on the use of a web-based medium for learning purposes. The study found that using a web-based medium had significant implications for the students learning in this environment. Although this study focused on students' perceptions of barriers and challenges, their perceptions also had implications for the institutions offering web-based courses and programs, as well as for the instructors of these courses.

The study indicates that being a learner in a web-based environment has implications for the learner, as well as for the instructor and the institution, and that we

cannot view learners in a web-based environment in the same light as those in a face-to-face environment. The experience of learning online involves more than just a transposition from one medium to another and involves not only changes in how the courses are delivered. It also involves changes in the role of the learners, how they communicate, and how they interact. As such, a need exists for students, instructors, institutions, and policy makers to be cognizant and aware that web-based learning entails a significant change in the learning process itself. Students need to be aware of the nature of web-based learning, their new role as learners, and the skills they will need to participate. So too, may instructors need to be aware of their role, the needs of their web-based students, and the knowledge and skills required to deliver courses in a web-based environment. Finally, institutions and policy makers may need to provide more support to web-based students and instructors.

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Appendix 1

Email to Potential Participants

Dear Participant:

You are invited to volunteer to participate in a study on web-based learning. The title of the study is **Barriers and challenges experienced by adult learners in web-based Master of Education courses.** I am a graduate student in the Master of Education (Information Technology) program offered jointly by Memorial University and the University College of Cape Breton. This research will serve as the basis of my Master of Education thesis. I may also refer to parts of thesis and data in academic papers submitted to conferences and journals.

As part of my research, I intend to conduct an asynchronous online discussion; an online asynchronous questionnaire, asynchronous interviews by email and a member check session with study participants. This research will involve students who are enrolled in web-based Master of Education courses offered through Memorial University. A pre-requisite to participating in this study will be prior participation in at least one web-based course delivered via the WebCT™ platform. The purpose of this study is to identify from the learner's perspective some of the barriers and challenges related to learning in a web-based distance education graduate program in order to gain insight into the types of experiences, which this new type of learning presents to students.

It is hoped that this research will provide information on ways in which to improve the delivery of web-based programs through developing a better understanding of the challenges and barriers faced by adult online learners. As part of this study you will be asked to participate in the following activities:

Activity 1: Asynchronous discussion with fellow students in an online discussion forum.

Participant time: approximately 1 hour over a period of two weeks

Activity 2: Completion of an online, asynchronous questionnaire.

Participant time: approximately 30 minutes over a period of one week

Activity 3: Participation in an email-based asynchronous interview.

Participant time: approximately 1 hour over a period of two weeks

Activity 4: Online member check through online discussion forum or by email.

Participant time: approximately 30 minutes over a period of one week

Participation in the online discussion will be through WebCT™ and will be held over a period of two weeks and will focus on the subject of the research. As a participant you will be expected to contribute approximately one hour of your time to this discussion. The researcher will serve as the discussion moderator and guide. The questionnaire will also be administered online, accessible through the WebCT™ platform over an approximate period of one week. The questionnaire will include several demographic-styled questions as well as a number of more open-ended questions on the research topic. It is anticipated that the questionnaire will require approximately 30 minutes to complete.

The individual interviews that will serve as a follow-up discussion to the questionnaire will be conducted using email. This interview/discussion will involve approximately one hour of your time over a period of approximately two weeks.

The online member check will be conducted within the WebCT™ discussion forum. Following the data collection and the analysis of the data, the researcher will post a summary of the conclusions and interpretations of the research. The study participants will have the opportunity to respond over the period of one week either by posting their responses directly on the discussion forum or by private email to the researcher. The researcher will notify the participants by email of when this phase of the research will occur. This activity will occur over a period of approximately one week.

To ensure participant confidentiality a special shell has been set up in WebCT™, dedicated solely to the collection of data for this thesis. Only the researcher and the research supervisor will have access to this shell. All transcripts that result from WebCT™ will only be viewed by the researcher and will be destroyed once they have been used in the study. All data from the interviews will be reported only in aggregate format and no participant's identity will be associated with any of the comments. It is your choice whether or not you answer the questions posed either during the discussion, on the questionnaire or during the interview.

The Interdisciplinary Committee on Ethics in Human Research of Memorial University has approved the proposal for this research. You are free to withdraw from the study at any time. All data collected will remain confidential. Where names may need to be used, pseudonyms will be chosen.

Your participation in this study is voluntary. If you have read the information in this letter and are willing to be contacted for participation in this study please read and sign the attached consent form.

If you have any further questions about this study or your possible involvement in it, you may contact one or both of the following individuals:

Principal investigator, Elizabeth Coleman: (902) 563-1613, or by email: liz_coleman@uccb.ns.c

Thesis Advisor, Elizabeth Murphy: (709) 737-7634, or by email: emurphy@mun.ca

If you have any questions concerning this study, which are not addressed by the researcher you may contact the chair of the Ethics committee at icehr@mun.ca or by telephone at 737-8368.

Consent Form

1. I understand that my participation in this study will involve the following:
    - Contributing to an anonymous discussion forum in WebCT™ along with a group of other students enrolled in M.Ed. courses at Memorial University.
    - Completing a questionnaire in WebCT™.
    - Participating in an interview via chat.
2. By agreeing to participate in this project, I am providing consent to publication of my comments in an anonymous format in part or whole in subsequent research reports and papers that may be published in relation to this project.
3. I understand that all responses will be grouped together and published in a collective form only.
4. I understand that the principal investigator, Elizabeth Coleman, will provide to me for final approval a transcript of any references to any of my comments made in the discussion forum, the questionnaire, or the interview or in any other part of the study.
5. I understand that if I do not wish to have these comments published or if I wish to edit, correct or change my comments prior to publication I may do so.
6. I understand that if I agree to participate in this project, I will be provided with the conclusions of the research and access to the final research report once all findings have been compiled and upon my request.
7. I understand that this is not in anyway a requirement of the course or program in which I am enrolled and that this research is being done independently of any

Master of Education course or program at Memorial University.

8. I understand that, should I decide to participate, my participation is voluntary.
9. I understand that I can choose to withdraw from this project at any time.
10. I understand that the researcher, Elizabeth Coleman, will be available during the study to answer any questions I might have.

If you agree to participate, please indicate your consent by replying to this email. Once you confirm your consent, the researcher will contact you with information on how to proceed to the next stage of the study.

Appendix 2

Study Questionnaire

This questionnaire deals with the results of your discussion. I have summarized the findings into nine categories. For each of the categories, I have listed some of the issues you raised.

Question 1:

Please comment further on any or all of the issues listed on the basis of what is most relevant to you.

Discussion Forum Issues

1. domination by a small number of students
2. exclusion from discussion
3. lack of responses to postings or negative responses
4. long postings
5. postings of a "social nature frowned upon"
6. postings misunderstood and no opportunity to clarify
7. posting for the sake of posting to get marks
8. keeping up with large number of posts
9. vague comments or simply statements of opinion
10. lack of organization, purpose or direction
11. need for instructor feedback and guidance
12. varying ability of instructors with using discussion forums
13. "out of control" discussions
14. value of "forced responses"
15. lack of experience in posting to forum
16. need for students to take responsibility for their actions in discussion forums

Your comments:

Question 2:

Please comment further on any or all of the issues listed on the basis of what is most relevant to you.

Technology Related Issues:

1. course website access problems
2. need for some experience in the area of computers

3. difficulties with software
4. different online formats
5. frustrations associated with interface
6. power outages, failed internet connections, inaccessible websites

Your comments:

Question 3:

Please comment further on any or all of the issues listed on the basis of what is most relevant to you.

Instruction Related Issues

1. lack of direction, organization and support
2. lack of feedback and slow response
3. lack of instructor guidance, involvement and presence
4. misspellings and other grammatical errors
5. unfamiliarity with operation of web-based learning system
6. involvement of instructor correlated with student enjoyment
7. changing the evaluation for the course as the course is on-going
8. need to keep course information up to date
9. instructor inability to facilitate
10. delivery of web-based course as a correspondence course
11. instructors challenged by notion of delivery outside of the classroom
12. instructor lack of experience/ability with web-based technology
13. lack of instructors' trust in technology
14. instructor training in the area of online communication required
15. failure to keep course related websites up-to-date
16. need for flexibility in web-based courses due to dependence on technology and telecommunication
17. quality of delivery uneven, dependent on the instructor

Your comments:

Question 4:

Please comment further on any or all of the issues listed on the basis of what is most relevant to you.

Web-based Communication Issues

1. lack of sound or facial expressions

2. inability to discern the flavor of a reply
3. interpretation errors through the use of text only
4. lack of social aspect as compared to a traditional classroom
5. lack of opportunity to discuss non-course topics
6. 'missing element is face-to-face" with the people'
7. difficult to "recreate flow and ambiance of classroom"
8. difficulty in making personal connection with screen
10. more time consuming
11. interpretation errors through the use of text only
12. sterile, very civilized setting
13. lack of sense of community
14. lack of formation of personal relationships as in a face-to-face course

Your comments:

Question 5:

Please comment further on any or all of the issues listed on the basis of what is most relevant to you.

Web-based Learner Issues

1. long absence from educational setting
2. feelings of isolation and of being an outsider
3. need for learner initiative and responsibility
4. ability to learn on own required
5. balancing demands of work, study and family life
6. personal sacrifices
7. course workload more than expected
8. need for students to come up with own joint interpretation of what to do
9. feelings of being ignored by instructor
10. low level of technical skills
11. learner comfort level with particular communication tools
12. web-searches time consuming
13. unfamiliarity with nature of web-based learning
14. need for a system that would provide step-by-step support

Your comments:

Question 6:

Please comment further on any or all of the issues listed on the basis of what is most relevant to you.

Web-based Group Work Issues

1. lack of involvement by all group members
2. more time consuming in web-based environment
3. difference in time zones makes synchronous communication inconvenient
4. experiences in attempting to join or form a group frustrating
5. groups that are too large
6. problems with the changing nature of groups
7. online group work difficult
8. "lack of face-to-face interaction makes communication less efficient"
9. need to tutor some group members on aspects of the technology
10. need to be open to the needs of group and what type of technology they are comfortable with

Your comments:

Question 7:

Please comment further on any or all of the issues listed on the basis of what is most relevant to you.

Institutional Support Issues

1. varying experiences between institutions
2. need for service year round
3. lack of awareness by staff
4. need to service and provide support to a diverse group of learners
5. need for adjustments and support to be in place to counter the difficulties for those who enroll at bare minimums
6. lack of technical guidance and support for using web-based systems

Your comments:

Question 8:

Please comment further on any or all of the issues listed on the basis of what is most relevant to you.

Synchronous Communication Issues (Chat)

1. scheduling issues in planning synchronous meetings
2. keeping track of different conversation threads
3. time zone issues
4. quick changes in discussion topics – trying to stay in the discussion

5. frustrating to get points expressed first
6. classmates who are "typing challenged have extreme difficulty with real time chat"
7. frustrations with synchronous meeting interface

Your comments:

Question 9:

Please comment further on any or all of the issues listed on the basis of what is most relevant to you.

WebCT™ E-learning System Issues

1. need for changes in system to increase it functionality
2. inability to change subject line in responses in discussion forum
3. inability to edit and delete messages after posting
4. lack of information splash page
5. inability to flip back and read through discussion postings while composing a message
6. when expanding a thread, system returns you to top of listings
7. issues around threading system in discussion forum
8. important messages can be buried - no way to highlight importance of messages
9. lack of flexibility as compared to other systems

Your comments:

Question 10:

Additional Issues

The purpose of this final category is to provide you with an opportunity to add any other points or issues that are not listed here but you deem notable.

Your comments:

Appendix 3

Interview Questions

1. You've participated in the discussion and questionnaire phases of this study. Can you talk to me a bit more about your experiences as a web-based learner? Are there some issues that have not been brought up yet?

2. Have your expectations as a learner in a web-based program been met? Please elaborate.

3. Do you perceive a different role and responsibilities for yourself as a learner in a web-based environment versus a face-to-face environment? Please comment.

4. From your perspective, what impact has the instructor's level of familiarity with the technology had on your experience as a web-based learner?

5. How important a role do you think learner preparedness plays in a learner's experience in a web-based course or program?

6. From your perspective has the lack of face-to-face interaction affected your experience as a learner?

7. Can you talk about you early experiences of having to post to a discussion forum?

8. What has been the significance of your participation in this study?