University Students' Experience in On-Line Courses

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Dedication

I would like to dedicate this thesis to my husband Gordon. Without his continued love, support and patience this work would never have been accomplished.

Abstract

The delivery of courses over the Internet (on-line) is becoming very popular. On-line courses are appearing for industry, general interest and for education allowing university students to take courses on-line. Universities now offer complete degree programs on-line. Numerous university instructors now use some form of on-line learning in the delivery of their courses. This study explores the experience of students taking on-line courses at the University of Prince Edward Island (UPEI). This research will assist instructors at UPEI in the development and delivery of their on-line courses, whether fully on-line or web-assisted, so that students' learning experiences will be enhanced.

This study used both qualitative and quantitative methods to explore students' responses to their on-line learning experience at UPEI. Questionnaires were e-mailed to all students enrolled in seven on-line courses offered at UPEI, with a return rate of 33%. Semi-structured qualitative interviews were held with students and course instructors. The results of the study indicate that both instructors and the students alike believed that the students had a positive learning experience while taking their on-line course.

The study revealed important benefits of on-line learning for both students and instructors including flexibility, convenience, accessibility, interactivity, and effective communication via bulletin boards. The findings also indicated that students and instructors believe in the importance of on-line course offerings at UPEI. During the time frame of this study, the majority of students enrolled in on-line courses at UPEI were students enrolled in a co-op program. The results of this study should give students

insight into what to expect when enrolling in an on-line course and provide instructors with valuable information regarding the development of on-line courses which will enhance the students' learning experiences.

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Chapter 1

Introduction

With the enormous potential of the Internet as an instructional teaching and learning tool and the availability of Internet access for students and instructors, web-based courses and web-assisted courses are becoming increasingly available through universities (Bee & Usip, 1998; Driscoll, 1998; Khan, 1997; Juliano, 1997). Our changing society now requires learning through an entire lifetime to keep up with changing job requirements (Driscoll, 1998; Howland & Moore, 2002; Jones, 2000; Wilson & Lowry, 2000). The World Wide Web (WWW) has provided adult learners with one means of access to lifelong learning. Since this is a relatively new teaching environment, research is required to explore issues related to web-based courses and on-line learning. Some of these issues include: how does an instructor design and deliver a course over the Internet? What is the best web course management tool to use? What are the advantages and disadvantages for students taking a web-based courses? What are the instructors' and students' perceptions and attitudes with regard to web-based and web-assisted courses? And finally, what are students' experiences in a web-based course? (Driscoll, 1998; McCormack & Jones, 1998). Research exploring students' learning styles, personality types, motivations for taking web-based courses, achievement in web-based versus face-to-face courses and students' experiences in on-line courses is in its

infancy. Only now are studies emerging in the literature which explore student's learning experiences while they complete courses on-line.

With the shift in course delivery and the increasing number of courses offered over the Internet, it is especially important to understand the effect that this new type of learning has on students and instructors. Understanding how web-based instruction effects teaching and learning will be a crucial factor in the design and delivery of effective on-line education in the future (Driscoll, 1998; Hara & Kling, 2000; Khan, 1997; Wilson & Lowry, 2000).

Background

The University of Prince Edward Island (UPEI) is a small university located in Canada's smallest province. Most students who attend the University are from Prince Edward Island. Many of those students live in rural areas with a long drive to the university. UPEI also offers several co-op programs that require students to spend part of the school year on work terms. Students who live in rural areas, as well as students enrolled in co-op programs at UPEI who are participating in work terms, are two of the groups that could potentially benefit from the development and delivery of web-based courses.

With an emerging focus on web-based learning, some faculty members, in the School of Business at the University of Prince Edward Island, believed that it was important to place some components or all of their courses on the Internet. In 1998, two faculty members in the School of Business, with the help of some internal funding,

decided to offer their courses on-line. Since on-line course delivery was new to these faculty, they utilized the help of UPEI's Information Technology in Education Centre (ITEC) to developed and deliver their courses on-line. As a result of this first attempt by faculty at UPEI to deliver on-line courses, it was decided that UPEI should choose a web course management tool to standardize delivery of web-based and web-assisted courses delivered at UPEI. WebCT was chosen as the web course management tool to be used at UPEI based on the investment costs, the ease of use for faculty, instructors and students, and the variety of study tools included in WebCT. WebCT is a software that allows instructors to create fully on-line courses or to have some components of their course on-line. WebCT is accessed over the Internet using a web browser. Using WebCT, instructors can:

1. provide course materials that include text, images, video, and audio;
2. evaluate students using quizzes and assignments;
3. facilitate learning using searchable indexes, glossaries, and image databases;
4. integrate web resources into the courses;
5. create opportunities for students to be knowledge builders;
6. encourage student interaction by using hyperlinks to websites, student web pages, and a note-taking tool;
7. communicate with students via discussions, email, real-time chat sessions, and an interactive whiteboard;
8. manage grades;
9. supply student feedback via an online grade book, self tests, and progress

tracking; and

10. obtain data that allows them to analyze the effectiveness of their course (WebCT 3.1: Getting started tutorial, 2000, p.1).

Since UPEI's Information Technology in Education Centre (ITEC) has been working to: a) inform faculty at UPEI of the benefits and of the importance of using WebCT in/or for their course; b) assist faculty who wish to implement web-assisted learning in their course on the Internet; and c) give faculty and students assistance and training in the use of the WebCT program when required. At the time of this writing, over one hundred courses at UPEI were utilizing WebCT in some form for their delivery.

General Problem Statement

Increased numbers of instructors at UPEI are creating web-based courses. In this new learning environment, it is essential to explore student's experiences and the extent to which students who complete a web-based course are enabled to learn the course material that has been presented to them. Educators are exploring numerous questions with regard to web-based learning (Burge & Roberts, 1998; Khan, 1987). Answers to these questions will ultimately assist instructors in the design and implementation of their on-line course to give students the best possible, positive, learning experience.

In this research study, I specifically explored the following questions:

1 When a student enrolls in a web-based course, what are the student's experiences while learning course content in an on-line environment?

2. When a student enrolls in a web-based course, what are the student's expectations towards learning course contents in an on-line environment?
3. Do students meet their expectations with regard to learning the course contents? If not, what could be done to support these students so they are able to meet their expectations and allow them to have a better on-line experience?

Significance of the Study

Since on-line learning is becoming a popular teaching and learning environment the findings of this study have provided valuable information to shape future direction of UPEI with regards to web-based instruction. The findings have provided information for faculty into students' learning experiences when enrolled in an on-line course at the University of Prince Edward Island. Students enrolled in a university course expect to come away from the course with new knowledge and a positive learning experience. If the course is not designed or delivered properly, students may have problems learning the course material and have a less than optimum learning experience. The study results should help faculty design and develop on-line courses that will improve the students' on-line learning experiences.

Since not many studies have been completed which explore students' learning experiences in an on-line course and how those learning experiences can be improved, this study will add valuable information to the knowledge base in the area of on-line

education.

The study should also give students who take future on-line courses insight into what to expect and what kind of learning experience they might have while taking an on-line course. This may be a determining factor for students as to whether they choose to take an on-line course or enroll in the traditional face-to-face course.

Since this study was completed to investigate and explore students' expectations and experiences while taking an on-line course, it was not only important to obtain data from the students but also from their instructors. Interviews were held with the instructors delivering the on-line courses to determine if the instructors' beliefs regarding their students' expectations and experiences while taking their on-line course we similar to those expressed by their students. This information will allow instructors to look closely at their course to determine if they possibly have to rethink part or all of their course to give the student a better learning experience or if they feel that it is suitable the way it is. This information also allows students to see how aware the instructors are regarding their expectations and experiences during the course. Having both perspectives can be an important factor in determining whether the on-line course is working or not, and possibly how to change the course to make it a better experience.

Research shows that there are many advantages and disadvantages to offering courses on-line (Bodian & Roberts, 2000; Burge & Roberts, 1998; Hites & Ewing, 1996; Khan, 1997). It is important for instructors to realize the advantages and disadvantages when designing and offering their course on-line. This should allow both students and instructors to have a better experience while involved in the on-line course. The results

of this study have provided information on the benefits and advantages of on-line learning for both instructors and students.

This thesis is divided in five chapters. In Chapter 1, the background and significance of the study are discussed. The research questions have also been identified. In Chapter 2, a review of related literature is developed. Chapter 3 discusses the research design and methods used to complete the study. Chapter 4 reports the study's findings. In Chapter 5, the major findings of the study are discussed along with suggestions for future research and what impact the study results could have on the future delivery of on-line courses at UPEI.

Definitions

1. A web-based course is defined as a course that is taught completely on the Internet. There is no face-to-face contact between the students and the instructor.
2. Web-assisted courses are a mixture of web-based content and face-to-face instruction.
3. Asynchronous courses are web-based courses which are time independent, and the exchange between students and instructors may be delayed by minutes or even days (Driscoll, 1998).
4. A synchronous web-based course requires the students to be on-line at the same time. Interaction among students and instructor takes place in real time (Driscoll, 1998).

5. Virtual learning environments are various software packages which have been developed to manage the different elements of on-line learning (Milligan, 1999).

6. Electronic mail (E-mail) is the transmission of messages over the Internet or other communications network. (Source: http://www.webopedia.com/TERM/e/e_mail.html)

7. Usenet news groups are bulletin board systems that can be found on the Internet and can be accessed through an on-line service provider. (Source: http://www.webopedia.com/TERM/e/e_mail.html)

8. Hypertext is a database system in which text, graphics, music and programs can be linked to each other. (Source: http://www.webopedia.com/TERM/e/e_mail.html)

9. Web-based course and on-line course are used interchangeably throughout this thesis.

10. Web browser is a software application used to locate and display web pages. Examples of web browsers are Netscape and Internet Explorer. (Source: http://www.webopedia.com/TERM/e/e_mail.html)

11. A Virtual University is the process by which students use technology to access educational offerings. (Source: http://www.edb.utexas.edu/cscl98/virtualU/generalinfo.html)

12. Co-op Students are enrolled in a program that integrates academic classroom studies with practical work experiences outside the formal university

environment. (Source: http://www.upei.ca/~sbusines/sbprograms/bba_coop.html)

Chapter 2

Literature Review

With advancements in both computers and access to the Internet, and the continuous decrease in cost, many universities are taking advantage of these technologies as teaching and learning tools (Bee & Usip, 1998; Driscoll, 1998; Juliano, 1997; Sternberger, 2002). Web-based or Internet instruction is growing faster than any other educational technology (Crossman, 1997; Jones, 2000; Ritchie & Hoffman, 1996). Because the Internet is becoming popular and more easily accessible for students, it is expected that the use of the Internet for the delivery of distance education courses is a trend that will continue in the future (Howland & Moore, 2002; Sherritt & Basom, 1998). In the United States alone, colleges and universities have increased their use of web-based instruction from 22% of institutions in 1995 to 60% in 1998 (Jones, 2000, p.1). Having a computer with an Internet connection allows students and faculty to exchange and access information from virtually any place in the world (Croswell, Thomas, Petre & Richards, 1999; Jones & Paolucci, 1999; Thompson & Stringer, 1998). As a result the, Internet is quickly becoming a major teaching tool for both supplementing and in some cases replacing the traditional face-to-face classroom (Driscoll, 1998; Hara & Kling, 2000; McCormack, & Jones, 1998; Wegner, Holloway & Graton, 1999).

Numerous post secondary institutions are now in the process of converting some of their traditional courses to Internet-based courses, as well as creating new courses on-

line (Hara & Kling, 2000; Ritchie & Hoffman, 1996; Howland & Moore, 2002; Wegner, Holloway & Graton, 1999). Web-based courses can be either asynchronous or synchronous, or a combination of both. These are now being offered at many universities and colleges in hopes of attracting students who cannot attend a traditional class, but who still want to earn a degree or continue their education (Burge & Roberts, 1998; Driscoll, 1998; Khan, 1997).

Models of On-Line Instruction

With an increase in the number of university instructors choosing to deliver part or all of their course on-line, the question of whether the traditional methods of instruction are suited for the delivery of on-line instruction or are new approaches to teaching required. Herrington and Oliver (2000) state "a popular research design in instructional technology is to compare the adaption of new innovation with the same material taught in a traditional manner" (p. 3). At present there have not been any new models of on-line instruction (Herrington & Oliver, 2000), but two of the traditional theories that have been applied to on-line instruction or on-line learning are: constructivist theory and objectivist theory (Gold, 2001; Khan, 1997). Khan (1997) defines constructivist learning as learning that "emphasizes the primacy of the learners' experiences, and cognitive strategies" (p. 60). In the constructivist model, learning is the result of mental construction, that is, learners use their mental constructions to assimilate their new knowledge based on their previous knowledge and learning experiences. A

learner enters into a learning situation with preexisting knowledge, attitudes, motivations and characteristics. The students then fit the new information with their previous knowledge (Gold, 2001; Khan, 1997; Mayer, 1997; Wilson & Lowry, 2000). According to Wilson & Lowry (2000), learners do more than process the information they are presented; they also build an interaction with their environment. Learners must also be presented with tasks to be accomplished and questions or problems to be solved that have relevance regarding what they as learners want to learn or accomplish (Alexander, 1995; Khan, 1997; Wilson & Lowry, 2000). The ideal constructivist web course would include multiple opportunities for students to synthesize, organize, and restructure information and then use that information for the creation or construction of their own resources (Beal, 1999; Clark, 1994; Gagne, Briggs & Wagner, 1992; Khan, 1997; Wilson, 1997).

Using the Constructivist model, Alexander (1995) discusses the creation of a web course using the following teaching strategies which were first discussed by Laurillard (1993):

1. Apprehending Structure: Students construct meaning as they read, listen, act, and reflect on the subject content.
2. Integrating Parts: Students need to be able to integrate the signs of knowledge such as language, symbols, and diagrams with what is significant to them.
3. Acting on the World: Students are asked to engage in some form of activity when integrated with other activities to assist in the understanding of content.
4. Using Feedback: Students need timely feedback on individual actions.
5. Reflecting on Goal-Action-Feedback: Students interpret and understand reality as

they make links between each of the above aspects by reflecting on the goals of learning, actions taken, and the results of those actions (p. 5).

Alexander (1995) also discusses the teaching strategies of Briggs and Telfer (1987) in which these researchers suggest that an appropriate motivational context, a high degree of learning activity, interaction with others, both students and instructors, and a well-structured knowledge base are essential in fostering deep approaches to learning. Alexander (1995) suggests that when Briggs and Telfer's (1987) and Laurillard's (1993) ideas are used to create a web course, "the students of today can look forward to new learning experiences which will not only provide them with an education, but a capacity for life-long learning as well (p. 7). Wilson and Lowry (2000) go on to explain that constructivist learning happens all the time whether it be on the web or in the classroom, but that this type of learning is well suited for web-based instruction.

In contrast, objectivist learning as defined by Khan (1997) is "information in the external world which is mind independent and can be characterized by objectives, concrete terms which are transmitted or communicated from the instructor to the student" (p. 382). In this model the emphasis is on the instructor and all instructional objectives are set by the instructor. The students are considered observers and their individual differences are either ignored or generalized (McManus, 2000; Moshinski, 1998). Gold (2001) states "the instructors role is to teach the students a well circumscribed body of information within a well defined learning environment" (p. 36). In this type of instruction or course, content is posted to the web via a text document such as a bulleted presentation and viewed by the student (Hodell, Egerton & Korgus, 2002; Khan, 1997;

Moshinski, 1998). This type of instruction does not allow for interaction by the student nor does it allow the student time to reflect, make inferences or develop chains of reasoning from what they read (Hodell, Egerton & Korgus, 2002; Moshinski, 1998). Both the constructivist and objectivist learning models can be applied to on-line course development. Leidner and Jarvenpaa (1995) suggest that no particular model is the best choice for creating a web course but possibly mixing learning approaches would be more appropriate depending on the type of course being offered, the course content, the goals for the course, and the experience, maturity and intelligence of the student taking the course. (Moshinski, 1998).

Joy and Garcia (2000) suggest that a student's learning effectiveness is a function of pedagogical practice. Therefore, an instructor must ask "What combination of instructional strategies and delivery media will best produce the desired learning outcomes for the intended audience?"(p. 1). Clark (1994) and Gagne, Briggs and Wager (1992) agree with Joy and Garcia and also believe that "learning is caused by the instructional methods embedded in the media presentation" (Gagne, Briggs & Wager, 1992, p. 26), not the media itself. Sternberger (2002) also agrees and suggests that a well designed on-line course is one which includes teaching strategies that address multiple learning styles, and requires the student to be able to be an active participant in the course.

A third approach to creating a web course is the Cognitive Flexibility Theory Model. In this model (which is constructivist in nature) a course is created in a way so that the learner or student must revisit the course material at different times and by

different methods throughout the course. (Jonassen, Davidson, Collins, Campbell, & Haag, 1995; Khan, 1997; Looms, 2000; Spiro, Feltovich, & Coulson, 1995; Spiro, Feltovich, Jacobson, & Coulson, 1991). This theory focuses on the learner instead of the instructor, and content is created to transfer knowledge and skills beyond the initial learning situation. (McManus, 2000; Spiro, Feltovich, & Coulson, 1995; Spiro, Feltovich, Jacobson, & Coulson, 1991). In the creation of content, emphasis is placed on "presentation of multiple perspectives and the use of many case studies that present diverse examples" (Spiro, Feltovich, & Coulson, 1995, p.1). According to this theory "information acquired in the real world context is better retained, the learning that results is more generative, higher order and more meaningful and the transfer of that learning is broader and more accurate." (Khan, 1997, p. 121; Spiro, Feltovich, Jacobson, & Coulson, 1991) Spiro, Feltovich, & Coulson (1995) believe that for students to learn they must be given the opportunity to develop their own ideas, and create their own representations of the content given.

The main principles of the cognitive flexibility theory model are:

1. Learning activities must provide multiple representations.
2. Instructional materials should avoid over simplifying the content domain and support context-dependent knowledge.
3. Instruction should be case-based and emphasize knowledge construction, not transmission of information.
4. Knowledge sources should be highly interconnected rather than compartmentalized. (Spiro, Feltovich, & Coulson, 1995, p.1)

This type of instruction is easily accomplished using the Internet as a basis because it allows the instructor to use page and hypertext links and present the information in different ways and formats. (Khan, 1997; Spiro, Feltovich, & Coulson, 1995; Spiro, Feltovich, Jacobson, & Coulson, 1991).

No matter what instructional model is chosen the "Seven Principles of Good Practice in Undergraduate Education can be applied to web-based learning (Chickering & Gamson, 1987) (Please see Appendix G), and these essential principles have been further refined and applied to on-line learning (Chickering & Ehrmann, 1996). Chickering & Gamson (1987) and Chickering and Ehrmann (1996) suggest that good on-line pedagogical practice follow these seven principles:

1. Encourages student-faculty contact: Contact between faculty and students is important to motivate students as well as encourage them to their values and future plans.
2. Encourages cooperation among students: Cooperation among students is essential to helping them improve their thinking and understanding skills.
3. Encourages active learning: Students learn better when they discuss what they learn, reflect on it relate it to their past and apply it to their own lives.
4. Gives prompt feedback: Students need immediate feedback to confirm they are learning.
5. Emphasizes time on task: Students need to have deadlines and have an idea of how much time to spend on preparing for their classes.
6. Communicates high expectations: Instructors should have high expectations for

the students, and should let them know that these high expectations are expected. Instructors need to reward students when expectations are met.

7. Respects diverse talents and ways of knowing: Allows students to learn the way they learn best. Diverse teaching strategies are required to reach all students (p. 1 - 4).

Graham, Cagiltay, Lim, Craner and Duffy (2001) used the Seven Principles of Good Practice to evaluate four web-based courses which were delivered by a large mid-western university in the United States. Using these principles, they identified what they called "learned lessons." Using Principle 1, they found that even though instructors wanted to be more accessible to their students through the use of e-mail and bulletin boards, this did not occur. The researchers suggested that instructors were apprehensive regarding the amount of time they would have to spend answering e-mails and bulletin board enquiries. Using Principle 2, the researchers suggested that courses that include well-designed discussion assignments and group projects can be accomplished using e-mail, chat or bulletin boards. They found the following ideas to be effective:

- Learners should be required to participate.
- Discussion groups should remain small.
- Discussion should be focussed on the task.
- Tasks should always result in a product.
- Tasks should engage learners in the content.
- Learners should receive feedback on their discussions.
- Evaluation should be based on the quality of the postings.

- Instructors should post expectations for discussions (p.2).

Using Principle 3, the researchers determined that students should be required to do class presentations because students learn valuable skills and are often motivated to perform at a higher level. Using Principle 4, Graham et al. (2001) noted that there were two types of feedback required by the students: information and acknowledgement. They defined information feedback as the answer to a question or mark in an exam while acknowledgement feedback was letting the student know that an assignment or question was received. From Principle 5 they also found that especially in an on-line course, students need deadlines. Using Principle 6, Graham et al. found that students needed challenging assignments in order to meet the instructor's expectations. Finally, using Principle 7, they found that students should be allowed to shape their own work by choosing topics that are of interest to them. This would allow students to express their own views about the topic.

Effective teaching strategies determined by other researchers included: 1) students posting class projects to the bulletin board and 2) prompt e-mail responses to questions from the student (Burge & Roberts, 1998; Chickering & Ehrmann, 1996; Driscoll, 1998; Migarlia, 2000). 3) Having Internet access and access to course materials from home allows students more time to spend on their course (Chickering & Ehrmann, 1996). Graham, et al. (2001) found 4) that students still need deadlines to avoid procrastination. Instructors must communicate their expectations for students' participation, otherwise students do not perform to the instructor's standards (Chickering

& Ehrmann, 1996; Graham, et al., 2001). Graham, et al. (2001) also found 5) that "challenging tasks, simple cases and praise for quality work communicate high expectations" from instructors (p. 4). The Internet allows for web pages containing graphics, streaming video, audio and plain text or the ability to incorporate all these types of information into one page. These pages allow for different types of learners to learn in the ways they find most effective (Chickering & Ehrmann, 1996). It also allows students who learn more quickly to move through the materials faster than slower learners (Chickering & Ehrmann, 1996; Hites & Ewing, 1997; Khan, 1997; Robinson, 1999).

The Seven Principles of Good Practice were used to evaluate four web courses, but Carol Sternberger (2002) went one step further by using the Seven Principles of Good Practice when developing her on-line course. She found no significant difference in the test and quiz scores of the on-line students compared to the face-to-face students, but a significant difference in the number of rewrites from the critiques and analysis the students were required to write. She found that the number of students who were required to rewrite these papers was minimal in the on-line course. She believed that this was due to the fact that the students in the on-line course were required to participate in an on-line discussion and their peers were required to critique and build on the information written by other students, while the students in the face-to-face class were only required to provide written work, to the instructor, for their critiques and analysis. Steinberger (2002) also found that participation in discussion also dramatically improved for those students who were taking the on-line version of her course. She also noticed that "peer pressure established expectations for participation", and that the "depth and

breath of discussions indicated that the course was learner-orientated and not teacher centred or 'sage on the stage'" (p.75).

Advantages and Disadvantages

As increasing numbers of web-based university courses are developed, instructors have explored the advantages and disadvantages of delivering courses through this medium. The literature shows that the advantages are numerous, but at the same time there are many disadvantages that must be considered (Bodian & Roberts, 2000; Burge & Roberts, 1998; Hites & Ewing, 1996; Khan, 1997).

Possibly one of the greatest advantages of delivering a web-based course is that it allows students easy access to the course. Students can take the course while they are working or at home raising their family (Howland & Moore, 2002; Ritchie & Hoffman, 1996). Web-based courses allow students to 1) learn at their own pace; 2) to choose what they themselves want or need to learn; and 3) to access the course at any time from any place, as long as there is a computer with an Internet connection available to them (Bodain & Robert, 2000; Burge & Roberts, 1998; Craverner & Michael, 1998; Driscoll, 1998; Leung, 1999; Robinson, 1999; Saltzberg & Polyson, 1995; Teri, 1999; Thompson & Stringer, 1998; Vogeler, 1996; Wallin, 2001). Also, if the course is asynchronous, students do not have to be on-line at the same time as other students and their instructor to work on or get the full benefits of a web-based course (Burge & Roberts, 1998).

Hypertext links provide another advantage of web-based courses. Web pages and web courses are developed with hypertext links. Hypertext allows the reader to move from one document to another, or from one portion of a document to another portion of that same document which is posted on a web site. Hypertext is cross platform which means that it can be accessed from any browser or hardware configuration (Alexander, 1995; Hites & Ewing, 1996; Ritchie & Hoffman, 1996). Hypertext allows easy integration of text, video, sound, graphics, and interactivity and once the document is created it is easy to modify and maintain (Hites & Ewing, 1996). Since hypertext allows the creator of a web site to link to other pages or sites, it also allows instructors who create a web course to link to other pages of the course, or to other sites outside the course which contain information relevant to the students' studies. Also, links to other sites will increase the amount of information the student is able to access while taking the course. Using hypertext allows a web course to be created so that students can access and move through the course content with ease and at their own pace, and all can be done without the student having to leave the Internet to search for more resources (Hites & Ewing, 1996; Khan, 1997).

Grisé and Roberts (1996) determined that another advantage of delivering a web-based course is that students and instructors can use Usenet news groups through the public news server over the Internet. They also found that e-mail can be used for instructor-student, or student-student contact because general e-mail messages can be sent via e-mail to all students registered in a course. Using the Internet in this way to support learning can create an opportunity to develop a relationship between instructors and

students. It allows for a one-to-one relationship between the instructor and individual students, and for relationships among students. E-mail can also be used to submit assignments for critiquing or grading and instructors can post grades to the Internet for students to access (Juliano, 1997).

Other advantages of delivering a course over the Internet include: reduced travel costs, ability to use existing equipment, reduce cost of materials, and ability to update and revise course content at any time (Burge & Roberts, 1998; Driscoll, 1998; Khan, 1997). Burge and Roberts (1998) also point out that some learners do not feel as intimidated by the instructor or by other students when they participate in an on-line course as they would if they were to participate in a traditional face-to-face course.

Although it appears that there are many advantages to using the Internet as an instructional tool, there are also a number of disadvantages that must be considered. One of the biggest disadvantages is student access to hardware, software, and network connections which are needed to access a web course (Burge & Roberts, 1998; Driscoll, 1998; Hites & Ewing, 1996). When creating a web course for delivery over the Internet an instructor must consider all the technical problems that may occur due to hardware and software issues (Driscoll, 1998; Khan, 1997; Kostopoulous, 1998). Some of these technical challenges include: students' computer availability, network speeds and access, server capabilities, technical support, and browser capabilities (Kostopoulous, 1998; Wallin, 2001), as well as lack of experience with computers, the Internet, and web-based courses (Howland & Moore, 2002).

Another disadvantage of using the Internet to deliver web-based courses is the fact

that instructors must learn new methods of teaching or instructing, while at the same time, students need to develop new methods of learning (Bodain & Robert, 2000; Burge & Roberts, 1998; Driscoll, 1998). Developing a web course can be time consuming and requires that an instructor be trained to design, develop and instruct that course over the web (Driscoll, 1998; Howland & Moore, 2002). Rogers and Laws (1997) have found that preparation and delivery time involved in creating an on-line course can be as much as two or three times greater than that of creating a traditional face-to-face course.

Some instructors believe that one of the greatest disadvantages of delivering a course over the Internet is that the students lose the direct contact and interaction with the instructor and other students in their course (Bodain & Roberts, 2000; Burge & Roberts, 1998; Driscoll, 1998; Howland & Moore, 2002, Valentine, 2002). They believe that this lack of interaction can cause a loss in timely feedback from the instructor and other students. This may result in a loss of motivation by the student, and result in a student not doing well in the course or eventually dropping out of the course altogether (Bodain & Roberts, 2000). Also, because of lack of communication or interaction with instructors and possibly due to a busy schedule, students can easily fall behind or put off completing assignments. This can occur when there is no one but themselves to motivate or push them into completing the course (Wallin, 2001).

Finally, fear and resistance to new technologies can also be a disadvantage. It has been suggested that there is a fear and resistance to any new technologies in higher education (Bollentine, 1998; Phillips, 2001; Redline & Hoehan, 2001). Bee and Usip (1998) believe that instructors and students may be reluctant to experience technologies

because they feel that the system they are familiar with works well, while Redline and Hoehan (2001) believe that it is due to the tools and equipment used in the delivery of on-line courses.

Evaluation of Students' Learning Outcomes and Students' Perceptions of On-Line Learning

Since course delivery over the Internet is relatively new, investigations of students' perceptions of on-line learning and student performance in courses are fairly new. It has been noted that there is very little evidence to date which demonstrates any significant difference between delivering courses on-line compared to delivering courses face-to-face (Schuttle, 1997).

Research findings have diverged on the question of how well students perform using on-line courses, compared to face-to-face courses. Many research studies suggest that there is no significant difference in students' performance in a web-based course as compared to students' performance in a different section of the course offered in the traditional face-to-face mode (Clark, 1999; Clark & Fritz, 1997; Foster & Fritz, 1999; Craswall, Thomas, Petre, & Richards, 1999; Hiltz, 1997; Dutton, Dutton & Perry, 1999; Loomis, 2000; Navarro & Shoemaker, 1999; Schulman & Sims, 1999; Smeaton & Keogh, 1999; Wegner, Halloway & Graton; 1999, Steinberger, 2002). At the same time, however, other researchers have determined that students taking an on-line course do

perform as well or better than their colleagues in the face-to-face version of the same course (Bee & Usip, 1998; Dobrin, 1999; Phipps, Merisotis, O'Brien & Harvey, 1999; Hiltz, 1997; Hoffman, 1999; Schuttle, 1997; Trinkle, 1999; Tryer, 1997; Wideman & Owston, 1999). In fact Schuttle (1997) found that students who took the on-line version of the course scored, on average, 20% higher on the class exams than those students who took the traditional face-to-face class. In all of these studies, performance was usually determined by comparing the marks of the students taking the on-line course to those of students taking the face-to-face version. With such divergent results, researchers may have to look at other variables in the determination of students' performance in on-line courses.

Some researchers have focussed on students' thoughts, perceptions and experiences while taking on-line courses. From the students' comments, these researchers have determined that e-mail is the primary means of communication between the instructor and students, and students with each other. Most students stated that they were generally happy with the interaction and timely responses to e-mail from the instructor and other students. (Bates & Rhue, 1999; Bee & Usip, 1998; Craswell, Thomas, Petre, & Richards, 1999; Hara & Kling, 2000; Jiang & Ting, 1998; Lundberg, 2000; Hiltz, 1997; Owen, Purvey, Ruhe, & Qayyum, 1998; Thompson & Stringer, 1998). Many students in the research studies expressed positive feelings about taking the course on-line. Some students stated that they really enjoyed taking the course and the flexibility and convenience that it allowed (Riveria, McAlister & Rice, 2002; Omalley, 1999). They indicated that they would take another course on-line. Most students also indicated that

they would recommend this type of study to other people (Bates & Rhue, 1999; Bee & Usip, 1998; Clark & Fritz, 1997; Foster & Fritz, 1999; Craswell, Thomas, Petre, & Richards, 1999; Jiang & Ting, 1998; Hiltz, 1997; Loomis, 2000; Lundberg, 2000; Nelson, 1997; O'Mallay, 1999; Owen, Purvey, Ruhe, & Qayyum, 1998; Shaw & Pieter, 2000; Rogers & Laws, 1997; Thompson & Stringer, 1998; Tryer, 1997; Wideman & Owstons, 1999). Howland and Moore (2002) found that those students who reported having a positive learning experience in on-line courses were students who exhibited constructivist learning styles, and who recognized the need to take responsibility for their own learning. Students reported that they gained valuable experience using the Internet and related tools and software from taking a course on-line (Craswell, Thomas, Petre, & Richards, 1999; Lundberg, 2000).

Technical issues such as access to a computer, Internet or software were a problem for some students, but generally these issues were not real problems encountered by most students (Craswell, Thomas, Petre, & Richards, 1999; Hara & Kling 2000; Hiltz, 1997; Rogers & Laws, 1997; Shaw & Pieter, 2000; Owen et al., 1998). Researchers found that the majority of students had to work harder and spend more time to complete their on-line course than they would have in a face-to-face course (Bates & Rhue, 1999; Hara & Kling 2000; Howland & Moore, 2002; Hiltz, 1997; Nelson, 1997; Rogers & Laws, 1997). Students indicated that they believed that using the Internet and related technologies increased their motivation for completing the course (Bates & Rhue, 1999; Owen et al.,1998). Students also indicated that trying out new technologies was a challenge (Dereshiwsky, 1999; Stelf-Mabry, 1998). Finally, students in a number of

studies agreed that taking an on-line course was cost effective and worth the time they put into the course (Bates & Rhue, 1999; Bee & Usip, 1998; Nelson, 1997; Owen et al.,1998).

Howland and Moore (2002) also found that the students who indicated that they had negative learning experiences in their on-line course were frequently those students who expected a different teaching style from their instructors. They expected the instructor to deliver all the needed information, and they expected more feedback and structure from the instructor. These students tended to be students who had not yet learned to take responsibility for their own learning.

Researchers have interviewed participants about their perceptions of learning in an on-line environment. Students suggested that instructors who returned e-mails and assignments in a timely manner enhanced the learning experience (Craswall, Thomas, Petre, Price & Richards, 1999). In a number of studies, students indicated that they participated actively in on-line discussions or on bulletin board postings and that these interactions were relevant to their learning (Bates & Rhue, 1999; Clark & Fritz, 1997; Hara & Kling, 2000; Hiltz, 1997; Jiang & Ting, 1998; Rogers & Laws, 1997; Shaw & Peiter, 2000). Studies have shown that students felt that using technology helped them learn more relevant information. Most students also stated that they preferred to search the web for information, than go to the library (Bates, 1999; Bee & Usip, 1998; Foster & Fritz, 1999; Hiltz, 1997; Lundberg, 2000; Owen et al., 1998).

A number of students reported that they were not sure whether they learned more from on-line or traditional face-to-face courses (Hiltz, 1997; O'Malley, 1999; Owen,

Purvey, Ruhe, & Qayyum 1998). Students in some studies reported that they learned more in the face-to-face class while other students felt that they learned more from taking the course on-line (Hiltz, 1997; Nelson, 1997; Owen et al., 1998). Some students also felt that having the ability to revisit and reread the material over and over again, in the on-line course contributed to their learning (Loomis, 2000).

Hiltz (1997) suggested that students who completed on-line courses were more independent learners. She also found that mature students tended to do better in the course and their drop-out rate was not as high as that of younger students. Stelf-Marby (1998) found that web-based instruction promoted independent learning by students and allowed the students to develop critical thinking and life long learning skills. Studies conducted by Rogers and Laws (1997), and Howland and Moore (2002) found that creating a web-based course using different presentation modes allowed students to have learning experiences that closely matched their personal learning objectives. Although students were generally satisfied with their on-line learning experience, that satisfaction was dependent on utility, exposure and ability to access the course (Wernet, Olliges, & Dehicath, 2000).

Loomis (2000) found that there was a high drop out rate in on-line courses as compared to traditional face-to-face courses. Loomis believes that the study skills that students bring into an on-line course is important to their success, and that good time management skills are very important in completing an on-line course.

Shaw and Pieter (2000) found that most students preferred taking a course on-line, because the material was easier to understand and that they had better access to the

instructor through e-mail than they would have had if trying to contact him/her in the office.

Finally, a study conducted by Bates and Rhue (1999) found that students believed that the course materials met their needs, that the materials were at the right level of difficulty, course materials were well organized and easy to follow, and that the software used to deliver the course was not difficult to learn or use.

On-Line Course Success

What determines whether an on-line course is successful? Is it student performance? Student attitude? Or are there other factors that determine the success of an on-line course?

Sawyer (1998) found that for a course to be successful: 1) the instructor and students must meet the course objectives; 2) that there must be sufficient interaction, involvement and enthusiasm within the class by all participating including the instructor; 3) that the students should be allowed to participate in their own way; 4) that the instructor plays a key role in the learning experiences of the students; and 5) that the medium chosen for the course be appropriate and support all the work required for the course. Sawyer (1998) also believes that the students who are taking the course are the key evaluators of that course. He suggests that "Successful completion of a distance program focuses on the extent to which learners can integrate their knowledge base building both socially and academically" (p. 5).

Phipps, Merisotis, O'Brien and Harvey (1999) suggest that the criteria for success of an on-line course are: the students' outcomes such as grades and test scores; students' attitudes about the on-line course, and their overall satisfaction with the on-line course. Phipps et al. also discussed what they believed were the students' characteristics which correlated with success of the on-line course. These characteristics were as follows:

1. Students who rated themselves high on various measures of persistence related to taking on new projects.
2. Married students.
3. Students who rated the consequences of not passing as serious.
4. Students who did not need support from others to complete their task (Howland & Moore, 2002).
5. Students with high literacy levels
6. Students who were well organized in terms of time management skills (Howland & Moore, 2002)
7. Students who rated their formal and informal learning high in terms of preparing for their university studies.
8. Female students. (p. 17)

The issue of whether or not an on-line course is successful, and how to determine if it is indeed successful, is one of importance. More studies need to be conducted to assess the criteria for success as developed by Phipps et al.(1999) and Sawyer (1998).

Summary of Literature

A review of the literature indicates that there is still much research required to develop a fuller understanding of web-based learning (Khan 1997). Researchers are exploring effective design and the type of material such as content, graphics, video, and links that should be included in a web course (Hites & Ewing, 1996). Research has determined the importance of focussing on connections with others in the context of the web-based course (Howland & Moore, 2002; Khan, 1997; Wernet, Olliges, & Dehicath, 2000). Researchers have determined that three models of on-line learning can be applied effectively to the development of on-line courses. These include: Constructivist Theory, Objectivist Theory (Khan, 1997), and Cognitive Flexibility Theory (Jonassen, Davidson, Collins, Campbell, & Haag, 1995; Khan, 1997; Looms, 2000; Spiro, Feltovich, Jacobson, & Coulson, 1991; Spiro, Feltovich, & Coulson, 1995; Truman, 1995).

Research studies have been conducted on advantages and disadvantages of web-based courses (Burge & Roberts, 1998; Driscoll, 1998; Khan, 1997). Advantages such as ease of creating and delivering a course on the Internet, ease of editing and maintaining the course after it has been created (Hites & Ewing, 1997), student access to the course, availability of tools such as e-mail, usernet newsgroups (Grisé & Roberts, 1996), and the ability of students to work at their own pace have been discussed (Bodain & Robert, 2000; Burge & Roberts, 1998; Cravener & Michael, 1998; Driscoll, 1998; Robinson, 1999; Leung, 1999; Saltzberg & Polyson, 1995; Teri, 1999; Thompson & Stringer, 1998; Vogeler, 1996; Wallin, 2001). Also, disadvantages such as technical issues (Driscoll,

1998; Khan, 1997; Kostopoulous, 1998), fear of new technologies (Bollentine, 1998; Phillips, 2001; Redline & Hoehan, 2001) and preparation and delivery time requirements (Bodain & Robert, 2000; Burge & Roberts, 1998; Driscoll, 1998; Howland & Moore, 2002; Khan, 1997; Price, McAndrew, Rist, Mayers, Bonharme, Land, Cuttle, Haywood, & MacLeod, H. , 1996) have been raised.

It is only now that learning outcomes of students and the evaluation of web-based courses and their impact on learning are starting to emerge in the literature. Thus far there is no consensus regarding the effect of the World Wide Web on learning. Some studies found that students who took a web-based course performed better than those students who took the same course in a traditional setting (Bee & Usip, 1998; Dobrin, 1999; Phipps, Merisotis, O'Brien & Harvey, 1999; Hiltz, 1997; Hoffman, 1999; Schuttle, 1997; Trinkle, 1999; Tyrer, 1997; Wideman & Owston, 1999) . Other studies found that there was no significant difference in the students' performance between web-based courses and traditional face-to-face courses (Clark, 1999; Clark & Fritz, 1997; Craswall, Thomas Petre, Price & Richards, 1999; Foster & Fritz, 1999; Hiltz, 1997; Dutton, Dutton & Perry, 1999; Loomis, 2000; Navarro & Shoemaker, 1999; Schulman & Sims, 1999; Smeaton & Keogh, 1999; Wegner, Halloway & Graton; 1999, Steinberger, 2002) .

Although researchers are now studying the effects of on-line education on students, instructors and educational institutions, there are still many differing views on what those effects are. What students learn with regards to the course content when taking a course on-line is not well-understood. The findings of a number of studies show that students enjoy taking a course on-line, state that they would take another course on-

line, and would recommend taking a course by this method to their friends (Bates & Rhue, 1999; Bee & Usip, 1998; Clark & Fritz, 1997; Foster & Fritz, 1999; Craswell, Thomas, Petre, & Richards, 1999; Jiang & Ting, 1998; Hiltz, 1997; Loomis, 2000; Lundberg, 2000; Nelson, 1997; O'Mallay, 1999; Owen et al., 1998; Shaw & Pieter, 2000; Rogers & Laws, 1997; Thompson & Stringer, 1998; Tyrer, 1997; Wideman & Owston, 1999). Since there have been varying results in studies investigating students' performance on-line, exploring students' expectations and experiences while taking an on-line course may provide some insight as to whether students are learning on-line, and how to better their learning experience.

Chapter 3

Methods

Design and Methodology

The focus of this study is on determining students' expectations and experiences of learning in an on-line environment, and exploring how their expectations might be improved. Because this is a relatively new field of study, this study used descriptive and exploratory approaches which drew upon both quantitative and qualitative methods. Qualitative and quantitative methods can be used in a study both to interact with and complement each other to produce broader and better results (Fontana & Frey, 1994; Kvale, 1996). This research utilized both questionnaires and semi-structured qualitative interviews of both students and instructors as the sources of data collection.

The information gained from the questionnaires contained demographic details about the participants as well as information about the students' attitudes and beliefs with regard to their on-line learning experience.

Questionnaires are quite often used by researchers to collect large amounts of data from as many respondents on a particular subject as possible (Black, 1999; Cohen & Manion, 1985; Krathwohl, 1997). Questionnaires also allow researchers to measure participants' attitudes, opinions and views (Black, 1999). The questionnaire administered in this study was used to gain demographic information and also

information pertinent to the learners' experiences in their on-line course.

Interviews, as stated by Fontana and Frey (1994) are "one of the most powerful and common ways we try to understand our fellow humans" (p361). Interviews are often used to uncover and understand the world from the participants' point of view (Fontana & Frey, 1994; Kvale, 1996; Marshall & Rossman, 1999). They also give the advantage of allowing participants to describe their experiences and clarify the meanings of their experiences (Taylor & Bogdan, 1984). In this study, semi-structured qualitative interviews were used for collection of more detailed information from the students, as well as to allow clarification of information gained from the questionnaires. Course instructors were also interviewed to obtain their views on what they believed the students learned and/or what the students should have learned while taking their on-line course.

Setting

There is a growing focus on web-based learning occurring at the University of Prince Edward Island, the research site for this study. The participants in the study were students in seven web-based courses offered at UPEI during the fall semester of 2001 and the winter semester of 2002. Web-based courses offered at UPEI were chosen as the research sites in the study because these would provide a wide range of information, background and technology experience of students. In addition, the courses range from first year to fourth year level. UPEI was also chosen as the setting for the study because most of the students were also enrolled in traditional face-to-face courses at UPEI, which

allowed the researcher access to students and instructors during the interview phase of the research

In the fall of 2001, web courses offered at UPEI were Philosophy 111 (Practical Logic), Business 488 (Management in Perspective), and Business 477 (Marketing Research). In the winter semester of 2002, the web courses that were offered were Philosophy 111 (Practical Logic), Business 482 (Business Management), Business 477 (Marketing Research), and Nursing 303 (Current Issues in Nursing). Philosophy 111 (Practical Logic), was taught by a different professor during the winter term, but both professors used similar course content and materials. The Business 477, Marketing Research, course was taught by the same professor both terms.

The Philosophy 111 course, Practical Logic, was designed to give students a variety of skills that allow them to reason correctly. Students learned to analyse and evaluate reasoning and argument by studying bias and propaganda, and learning to identify and build arguments. Business 477, Marketing Research, was designed to explore a new set of marketing rules for global marketing that empowers the small and the innovative. The objectives of the course were to help students gain an understanding of the new global business environment and as well, to gain an understanding of individual and group behaviour. Business 482, Business Management, was a skills based course supported by research and practising managers. The objectives for this course were to assist students in demonstrating and improving their own leadership, team, and communication skills. Business 488, Management in Perspective's goal was to give students a historical perspective of the development of professional management.

The course objectives were to explore questions dealing with the changing economic, social and political forces which contribute to the development of management as a profession. Nursing 303, Current Issues in Nursing, was designed to provide nursing students with the opportunity to identify and examine issues important to nursing and health care. Emphasis in the course was on critical thinking about the issues

Although all these courses were different in the approach to subject matter and course objectives, all of these courses used the WebCT software as their on-line platform. WebCT utilizes a broad range of features or tools such as lecture notes, bulletin board, chat, glossaries, internal e-mail, and practice as well as actual quizzes. While not all on-line courses offered at UPEI use exactly the same tools, all seven courses in this study used the bulletin board as their main discussion forum, and included all the lecture notes on-line. All seven courses required the students to obtain a text book to accompany the course. The instructors posted weekly questions or discussion topics to the bulletin board. The instructors relied heavily on the students' postings on the bulletin board to determine how they were doing in the course. Although all instructors indicated to their students that discussion on the bulletin board was a mandatory part of completing the course, the Philosophy 111 course was the only one in which the instructor did not mark the students on their bulletin board participation. The Business courses did not utilize the quiz portion of WebCT, while Philosophy 111 used this function for practice quizzes and Nursing 303 used the quiz tool to administer the final exam for the course. All courses also required the students to complete term papers which were e-mailed directly to the instructor. All the on-line courses except Philosophy 111 also had a face-to-face meeting

at the beginning and end of the term. Since the on-line courses in this study utilized the WebCT platform, and many of the same features were used in the delivery of the courses, it may be concluded that the students in all the on-line courses had similar or comparable on-line learning experiences with regards to the tools used within the WebCT environment.

Sample

Purposeful sampling was used for choosing participants in this study because the study specifically explored the experiences of students who were taking on-line courses at the University of Prince Edward Island. Purposeful sampling is described by Bogdan and Biklen (1992) as the "choosing of specific subjects for a particular study because they are believed to facilitate the expansion of a developing theory" (p.71). All students enrolled in web courses at UPEI in the fall semester of 2001 and their instructors were invited to participate in the study. Because of a low questionnaire response return rate of only 19.4%, students in the winter semester of 2002 as well as their instructors were also invited to participate in the study. All students enrolled in these web courses were asked to fill out a questionnaire and return it to the researcher. Four students as well as all six course instructors participated in semi-structured qualitative interviews.

Ethics

Since human participants were involved in this study, approval to complete the study was required from the Ethics Review Board of UPEI. In early fall of 2001, the research proposal for the study was submitted to the Ethics Review Board of UPEI. Because of a low questionnaire return rate, mentioned previously, a request for an extension of the study to include on-line courses taught in the winter of 2002 was submitted to the Ethics Review Board early in 2002. An extension was granted.

In studies involving human participants, anonymity is an important issue. The researcher stated on all consent forms that any information given for this study would be kept strictly confidential. Since some of the questionnaires were returned by e-mail, and e-mail messages contain the sender's e-mail address and sometimes the name of the sender depending on how the e-mail was initially set-up, the portion of the e-mail with the sender's information was removed and destroyed. In the case of the Nursing students who filled out the questionnaire during their final meeting, the consent form and the questionnaire were placed in different piles so that the questionnaire and consent form would not be associated with each other. Once the interviews were transcribed, and the corrected transcription returned to the researcher, all information regarding the interviewee was removed.

Instruments

The main questionnaire chosen for this study was developed by a group of researchers at the University of British Columbia under the direction of Tony Bates, Director of Distance Education and Technology at that university (See Appendix D). The questionnaire was created for a series of case studies which investigated the learners' responses to technology-based learning. These studies were funded by the Office of Learning Technologies (Human Resources Development Canada). The questionnaire is divided into sections , which ask the students a wide range of questions about the use of technology. The original questionnaire contains a section on costs which was removed from this study as it is not relevant to this investigation.

Descriptive statistics are used when there is a need to condense large amounts of data (Evans, 1998), to analyze, summarize and allow characterization of the data (Weiss, 1982). Descriptive statistics were used in this study to analyze the data obtained from the questionnaire. SPSS was used in the analysis of the data to determine the participants' response frequencies. The open-ended questions in the questionnaire were first read and reread, then coded and grouped into categories or themes using a word processor.

Interview questions were developed by the researcher for the semi-structured qualitative interviews with both the students and course instructors. The interview questions were created with the intention of gaining additional information regarding the students' experiences while taking on-line courses. The instructors' interview questions

guide was developed to explore the instructors' thoughts or beliefs regarding their students' experiences while taking the on-line course.

Procedure and Data Analysis

After obtaining approval from the Ethics Review Board of UPEI to conduct the study, the course instructors were immediately approached by the researcher because the fall term was drawing to a close. The researcher explained the study to the instructors and asked permission to invite the students in their on-line courses to participate. By the time the researcher had the permission of the instructors to use their students in the study and e-mail addresses for the students, the fall term was into its second last week. During this second last week of the term, an e-mail was sent to each student's e-mail address supplied by the instructor. The e-mail contained an explanation of the study, an informed consent form and a request asking each student to participate in the study (See Appendix A). Students were asked to type their name on the consent form (See Appendix B) and return the consent form to the researcher by e-mail. Initially only four of 36 students returned the consent form. Those students who returned their consent forms were then sent the study questionnaire by e-mail attachment in WordPerfect format. One student requested the questionnaire be sent in MS Word format which was done. All four students returned their completed questionnaire. The 32 students who did not respond to the first request were sent a second and third e-mail explaining the research and an informed consent form. As a result of these two reminder e-mails, three more students

returned their consent form. These three students were then e-mailed the questionnaire in WordPerfect format. These three students also returned the completed questionnaire. As a result of the three requests a total of seven students returned the questionnaire giving a return rate, in the fall term, of only 19.4%.

Because of this low response rate a request to extend the research to the winter semester was submitted to the Ethics Research Board of UPEI. After the extension was granted for the winter term of 2002 the researcher again approached the instructors of the winter on-line courses and explained the study to them. A request was made to include their classes in the study. With the instructors' permission, an e-mail was sent to each student by e-mail during the third last week of the term. E-mail addresses were supplied by the instructors. The third last week of the term was chosen because at this time three quarters of the term was complete. This gave the students enough time to become familiar with all the aspects of the on-line course and be better prepared to respond to the questions contained within the questionnaire. As well, it gave the students an extra week to complete the questionnaire prior to end of term. The initial e-mail sent to each student included an explanation of the study, an informed consent form, the questionnaire as a WordPerfect attachment, and a request asking them to participate in the study. Questionnaires were attached to the e-mail this time in hopes that students would be more inclined to complete both the informed consent form and questionnaire and return both at the same time instead of having to return the consent form and then wait for the questionnaire in a separate e-mail. Students were asked to type their name on the consent form, complete the questionnaire and return both to the researcher by e-mail. E-mail

messages were sent to 55 more students for a total of 91 potential participants. Two students returned their consent form and completed questionnaire. After the initial e-mail message, a similar follow-up e-mail message was sent to the sent to the students who did not participate. One more student returned the consent form and completed questionnaire. A third e-mail was sent to those 52 students who did not respond. This time the consent form, explanation of the study and questionnaire were embedded in the e-mail message. This would resolve any possible compatibility issues with the e-mail attachments if there were any, and it would allow the students to complete the questionnaire and return it without having to download it to their computer and then attach it to a message to send back to the researcher. An additional two consent forms and completed questionnaires were returned from this method. A total of five questionnaires were returned during the winter term.

The total number of students who chose to participate in the study was 11, which gave a return rate for the questionnaire of 12.1%. After hearing about the low return rate, the instructor of the nursing course volunteered to allow the questionnaire to be given during their final face-to-face meeting. These students were also allowed to complete the questionnaire during this class. As a result of this face-to-face contact, nineteen more questionnaires were returned for a total of thirty questionnaires returned. A return rate of 33% was achieved. As the questionnaires were returned they were given an identification number, and checked off the class lists so no further correspondence would be sent to them. The covering page revealing the name of the sender of the e-mail was removed and destroyed to protect the confidentiality of the participant. The consent

forms were also given an identification number for later use in choosing interview participants.

From the students who responded to the questionnaire, six students were initially randomly chosen for interviews using the two digit number given to the consent form and the random numbers table (Weiss, 1982). The starting point was chosen by the researcher closing her eyes and pointing to the table. From that point the researcher moved down the table recording the first two digits of each column number until six numbers which corresponded with numbers assigned to the participants' consent forms were obtained. Those six students were then sent an e-mail asking them to participate in an interview. When only one agreed to be interviewed, the researcher returned to the random numbers table and continued in the list until six students were willing to participate. Of the six who had agreed to participate, four were able to keep the appointed interview time. The four interviews were conducted at a place at the university and a time agreed upon by each student. These semi-structured interviews ranged in time with one student completing the interview in fifteen minutes, two students taking approximately twenty five to thirty minutes and one student completing the interview in forty minutes. Two of the students gave very short answers and the researcher followed up with probes. The six course instructors who taught the on-line courses also agreed to be interviewed. At the time of the interview, the instructors filled out an informed consent form (See Appendix C). These interviews took place in the instructors' offices at a time convenient for the instructor (See Appendix F). On average the instructor interviews took fifty minutes to complete.

The interviews were recorded using audio tape and then transcribed (Marshall & Rossman, 1999). Once the interview tapes were transcribed, the transcriptions were e-mailed to the participants to allow the participants to make corrections or clarify what they said in the interview. One participant returned the transcription of the interview and requested several grammatical changes. The transcripts were read and reread to ensure their accuracy.

The researcher then began to analyze the data. The transcripts were then read and reread, and the researcher made notes in the margins, and highlighted phrases and words in the text. From these notes, and highlighted text, as well as from the research literature, themes and categories, started to emerge. Several themes that emerged were flexibility, accessibility, and interactivity. Different coloured highlighters were used to highlight themes and categories and then to compare these with passage from different participants. Finally, each theme or category was given a numeric code. A word processor, Corel Word Perfect, was used to assist in the process of organizing the data.

All data obtained from the study were coded and all names of participants were removed. The data are kept in a drawer of a locked filing cabinet in the researcher's office. This office is locked at all times when the researcher is not present. The class lists were kept in a separate drawer of that locked filing cabinet as well. The data will be kept for three years after the study is completed and destroyed after that time.

Trustworthiness of the Study

In this study, two different methods of data collection were utilized: questionnaires containing multiple choice, likert scale and open-ended questions, and semi-structured qualitative interviews of both students and instructors. The questionnaire was developed by a group of researchers at the University of British Columbia under the direction of Tony Bates, Director of Distance Education and Technology at that university and used in several research studies. These various data collection types allowed the researchers to triangulate the data and compare results (McMillan & Schumacher, 1997). Triangulation is the use of multiple and different sources and methods of data collection for the corroboration of information gained (Creswell, 1998). The questionnaire administered is an adaptation of that used by Bates and Rhue (1999) as described above. It has been used in various case studies of on-line courses offered through the University of British Columbia, and its reliability as a research instrument has been established. The results of those case studies have been published.

The students and instructors were given a detailed description of the study and a letter of consent prior to the beginning of the study. This allowed them to decide if they were willing to participate. The consent form was then returned to the researcher if the individual chose to participate. All data, notes and instruments resulting from the study were kept in a secure place for tracking processes. To check for credibility of the study, time was spent checking for negative occurrences. The researcher's analysis included checking and rechecking the data to ascertain its accuracy.

For this study, as in all research studies, students were asked to participate voluntarily and there was no requirement for the student to participate. For this reason some students might have chosen to participate because of their strong feelings either for or against on-line learning. This possibility was considered by the researcher when analysing the data obtained during the study.

As the coordinator of the group responsible for faculty assistance in creation of web-based courses at UPEI, I knew that it was important to maintain neutrality while engaging in this research project. When I occasionally had trouble maintaining a neutral position, I would step back from my research for a while, then go back to it later when I could look at it more objectively. I also had another reader that would critically look at what I had written and question some of my comments to determine if they resulted from the data or from my own personal experience. This helped me take a second look at the way I approached my data.

Chapter 4

Results

The aim of this study was to determine what students' experiences were while taking a web-based course, and if the students believed that their expectations about their learning in on-line courses were met. This study also explored what might be changed to help the student enjoy a more satisfying learning experience if these expectations were not met. To accomplish this, a questionnaire was e-mailed to each student taking an on-line course, in the fall semester of 2001 and also in the winter semester of 2002. The courses involved were Philosophy 111(both semesters), Business 482, Business 488, Business 477, (both semesters) and Nursing 303. The Philosophy courses were fully on-line while students in the Nursing and Business courses met at the beginning and end of the term.

Ninety-one questionnaires were distributed and 30 students returned their questionnaire, for a final response rate of 33%. Of these 30 students, six agreed to be interviewed. Actual interviews were completed with four students. The six professors who instructed the on-line courses also participated in semi-structured qualitative interviews. Four sets of data were obtained from the study. These data include statistical data from the questionnaires, qualitative data from the open-ended questions on the questionnaires, and interviews of students and instructors. Findings from the questionnaires will be presented and discussed first, followed by the findings from the interviews.

Student Demographics

Nineteen of the questionnaires returned were from the 21 students taking the Nursing course, while the other 11 questionnaires came from the six other courses. This indicates that when questionnaires are administered by the instructor and some class time given for answering the questionnaire there is a substantially better return rate. Of the 30 students, 21 were female, seven were male and two did not specify their gender (see Figure 1).

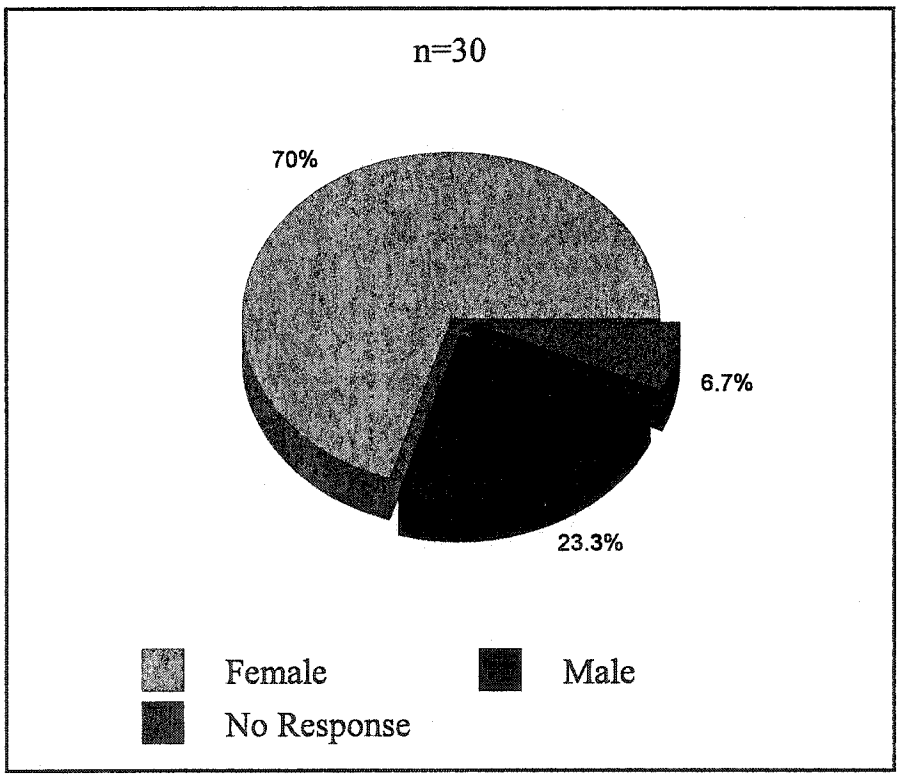

Figure 1. Percentage of male and female participants.

Eighteen students were between the age of 18 and 25, 5 were between 26 and 35, three were between the age of 36 and 45, two were between 46 and 55 and two did not give their age (see Figure 2). The average age of the students who reported their age was 27.

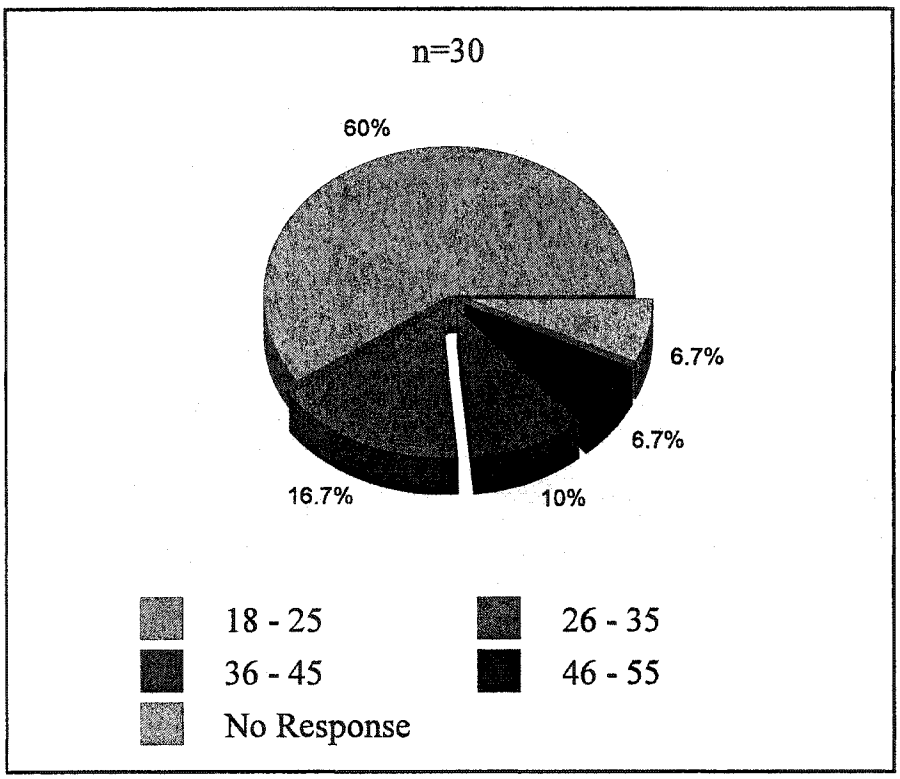

Figure 2. Percentage of participants falling within certain age groupings.

Students were asked if they were the primary care giver in their home. Twenty-five of the students indicated that they were not primary care givers, while three indicated that they were and two did not answer the question (see Figure 3) .

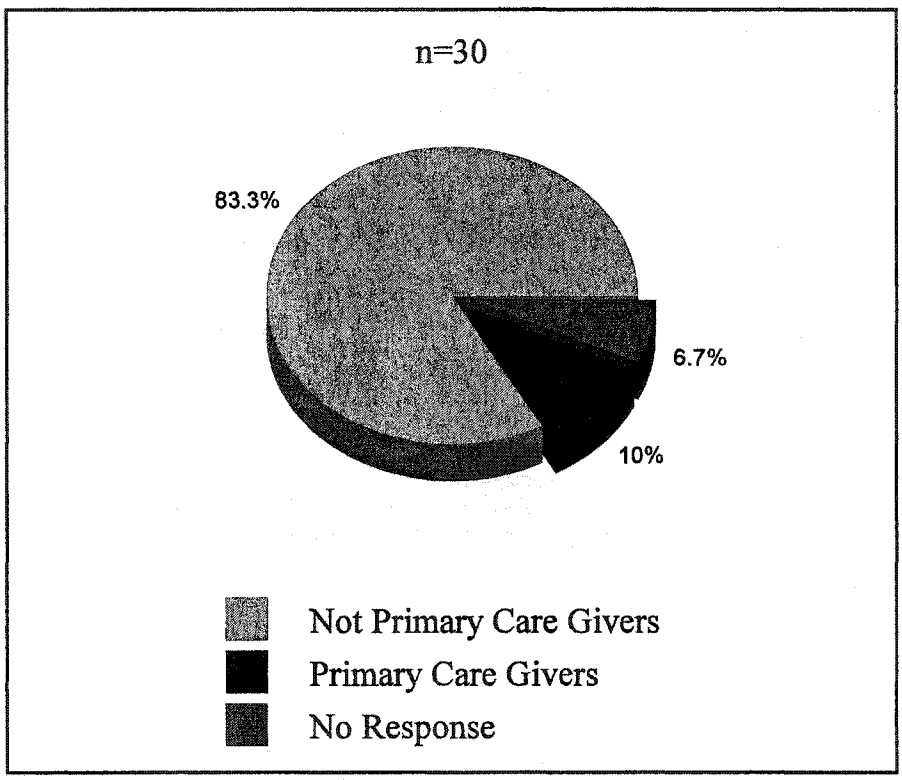

Figure 3. Care giver status of participants.

Students were asked if they were employed. Nineteen of the students indicated that they were employed on a part-time basis while they completed their studies, while 9 stated that they did not work and 2 students did not respond to the question (see Figure 4).

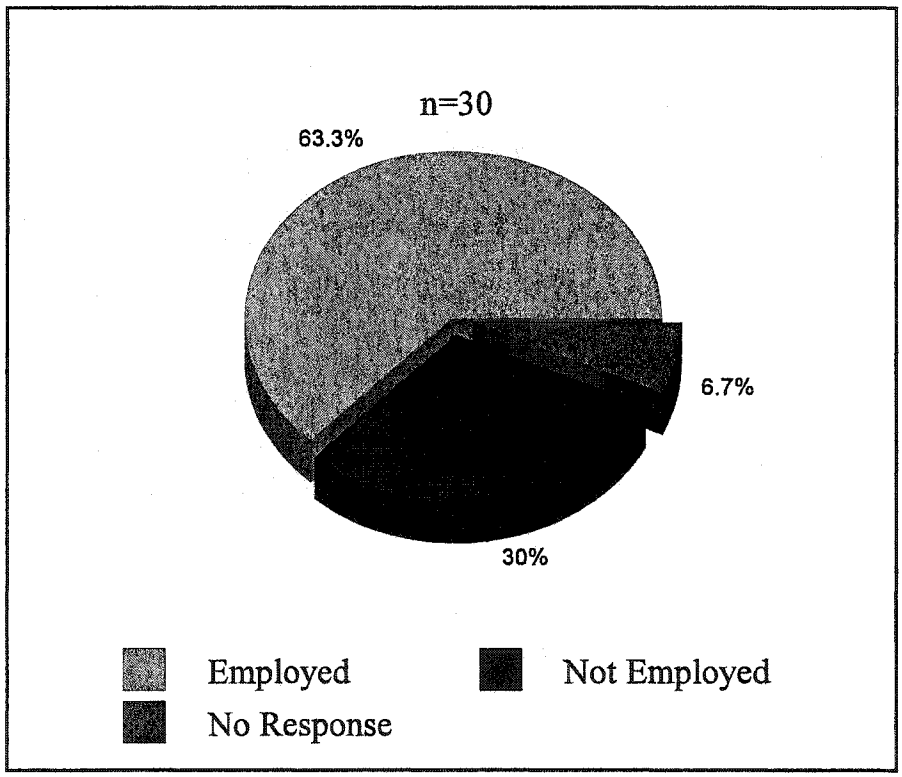

Figure 4. Percentage of participants employed versus those not employed.

Questionnaire Results

Information from the student questionnaires is now presented.

Course delivery

The first set of questions in the questionnaire dealt with course delivery[1] (see Table 1).

Table 1

Percentage of Student Responding to Aspects of the Course Delivery Method (n=30)

Question	n/a	1	2	3	4	5
This delivery method gives me flexibility in my studies	3.3	3.3	6.7	3.3	26.7	56.7
I am able to interact with instructor as much as I want.	3.3	6.7	10	13.3	30	36.7
I am able to interact with other students as much as I want.	3.3	3.3	6.7	6.7	43.3	36.7
Interaction with instructor is relevant to my learning.	6.7	10	10	6.7	36.7	30
Interaction with other students is relevant to my learning.	3.3	16.7	0	13.3	50	16.7
I would be able to complete course if not offered by this method	6.7	46.7	10	10	6.7	20
I would not take another course using this delivery method	3.3	43.3	13.3	26.7	6.7	6.7

1 = Strongly Disagree
2 = Disagree
3 = Neither Agree nor Disagree
4 = Agree
5 - Strongly Agree
n/a = No Response

[1] For this discussion portion of the results, the positive ends of the scale, " strongly agree" and "agree," and the negative ends of the scale, "strongly disagree" and "disagree," are combined. Figures show actual data.

The first question explored whether the delivery method gave the students flexibility in their studies. Twenty five students (83.3%) indicated that they liked this delivery method because it gave them flexibility. Three students (10%) did not like the delivery method while one student (3.3%) neither agreed nor disagreed and one student (3.3%) did not respond.

Students stated that the most important aspects of course delivery were:

a. Flexibility

b. Ability to work at home

c. Time convenience

d. Ability to schedule course around other activities.

One student commented that, "I appreciate the flexibility," while another student stated, "It is nice to be able to work from home," while yet another student responded that, "The web course suits my schedule."

The second area explored in the questionnaire was the interaction students had with their instructor. Twenty of the students (66.7%) indicated that they were able to interact with the instructor as much as they wanted. Five students (16.7%) expressed that they were not able to interact with the instructor as much as they wanted while four students (13.3%) neither agreed nor disagreed and one student (3.3%) did not respond to this question.

While two students indicated that they were not able to talk to the instructor during the session and another student missed the face to face contact with the instructor, the overall impression expressed was that access to, and communication with the

instructor was fast and easy and that there was a continuous exchange of information. Students commented that:

a. "I thought that the instructor was very responsive to my postings. In some ways it's better than a classroom setting because I get the one-on-one, detailed feedback."

b. "Even though the course is conducted via the Internet, there is still interaction between students and instructor. Email messages are used, or a personal connection can be arranged with the instructor."

c. "Exchange of info is continuous, efficient and very fast"

d. "Interaction with instructor was terrific."

e. "When you are in a classroom environment, you have the tone of voice, and the person to person communication that is sometimes needed to get a point across. But some people can also communicate better with writing, so either way is good."

The third question in the course delivery category dealt with interaction with other students. The majority, 24 of the students (80%), agreed or strongly agreed that they could interact with other students as much as they want. Three students (10%) disagreed or strongly disagreed that they could communicate with other students while two students (6.7%) neither agreed nor disagreed with this statement and one student (3.3%) did not respond.

Students indicated that they could interact with each other either by the bulletin board or through direct e-mail but that sometimes it was hard to get a reply and in some

cases there was no response at all. One student responded that, "On-line bulletin boards are an excellent means to facilitate discussion and exchange of info is continuous, efficient and very fast."

The fourth question in this series explored whether the students felt that interaction with instructor was relevant. Twenty students (66.7%) indicated that interaction with the instructor was relevant to their learning. Six students (20%) did not believe that this interaction helped them learn, while two students (6.7%) neither agreed nor disagreed and two students (6.7%) did not answer this question.

Students' comments included: "The instructor in our course read and replied to all messages which raised good or bad points with his own interpretation of the material. I found that there was more one-on-one student/instructor interaction involved in this course than would be possible in a normal classroom/lecture format." Another student stated, "I was able to learn adequately because of the information given to me. The instructor threw out good information and gave us lots of time to work with it." One student simply stated, "The instructor did not participate in discussion."

The fifth question dealt with whether the students felt that the interaction with other students was relevant to their learning. Twenty students (66.7%) indicated that the interaction with other students was relevant to their learning. Five students (16.7%) strongly disagreed with this statement while four students (13.3%) neither agreed nor disagreed and one student (3.3%) did not respond.

Question responses showed clearly that students felt that the interaction with other students was relevant to their learning, however their written comments did not

tend to indicate this.

Students' comments included:

a. "There was really not enough student interaction to speak of."

b. "You have to filter out lot of bullshit posts."

c. "I really did not have much interaction with the students in this course."

d. "While interaction with fellow students is relevant, it isn't as important as interaction with the instructors. A web course is the same way."

e. "Most of the posts are clarification of the course content and , in my opinion, that is useful to every student."

The sixth question explored the student's ability to complete a course if not offered by this method. The majority of students, 17 (56.7%), indicated that they would be able to take the course if it was not offered on-line, while eight students (26.7%) indicated that they would not be able to complete the course by another method. Three students (10%) neither agreed nor disagreed and two students (6.7%) did not respond.

One student commented that, "I may not have completed it at that time because I was taking another course in the classroom, and I have found that taking two classroom courses while working full-time and having other interests is a bit too difficult. However, taking one classroom course, and one web course gives me the flexibility to handle taking two courses." Another student commented, "I would not say that I would have been unable to complete it if it were not offered in this format, but it is a good possibility that I would not have chosen to take the course in a normal classroom/lecture format, due to the time constraints placed on me by my work." One student also stated,

"As the course is a requirement for my future studies, I would find a way to complete it, however a web course offers me much more flexibility."

The seventh question looked at whether students would take another course using this method. While one student (3.3%) did not answer this question, 17 students (56.7%) indicated that they would take another course using this method. Eight students (26.7%) neither agreed nor disagreed and four students (13.3%) indicated that they would not take another course using this method of delivery.

While seventeen students indicated that they would definitely take another course on-line, three students indicated that it would depend on the course. One student responded by saying, "I would definitely take another web-course... this is my fourth and if I were at the start of my degree as opposed to the end I would take as many as possible...it's a great way to communicate ideas, you get the opportunity to formulate your thoughts before voicing them and that's much better than just blurting something out in class. I've learned more in two web courses than I've learned in four years at UPEI." One student also commented that, "I am not independent enough to keep it up."

The eighth question explored the students' experience with technologies (see Figure 5).

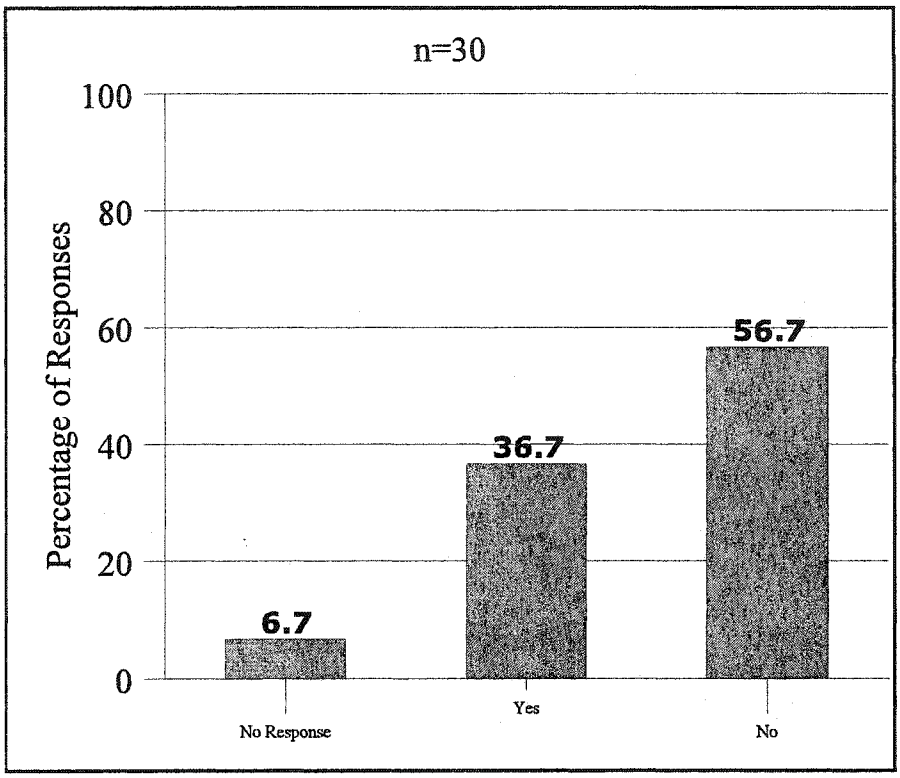

Figure 5. Percentage of participants' responses about their experiences with technology.

Seventeen students (56.7%) indicated that they were familiar with the technology, while 11 students (36.6%) indicated that they only had limited experience with technology and two students (6.7%) did not respond.

Most students who commented said that they were familiar with using computers, but one student commented that, "the first time I ever turned on a computer was when I started university" and another student commented that, "this course was the first time using this WebCT."

Students were then asked what delivery methods they preferred (see Figure 6). Fifteen students responded to this question. Students were encouraged to choose more than one method if they actually preferred more than one. The results show that the students chose a mix of technologies as the most preferred delivery method with ten responses. The face-to-face delivery method was the second most popular delivery method with seven responses. Students chose on-line delivery as the third preferred method with only four responses. Print based distance and print based distance with cd-rom only received two responses each.

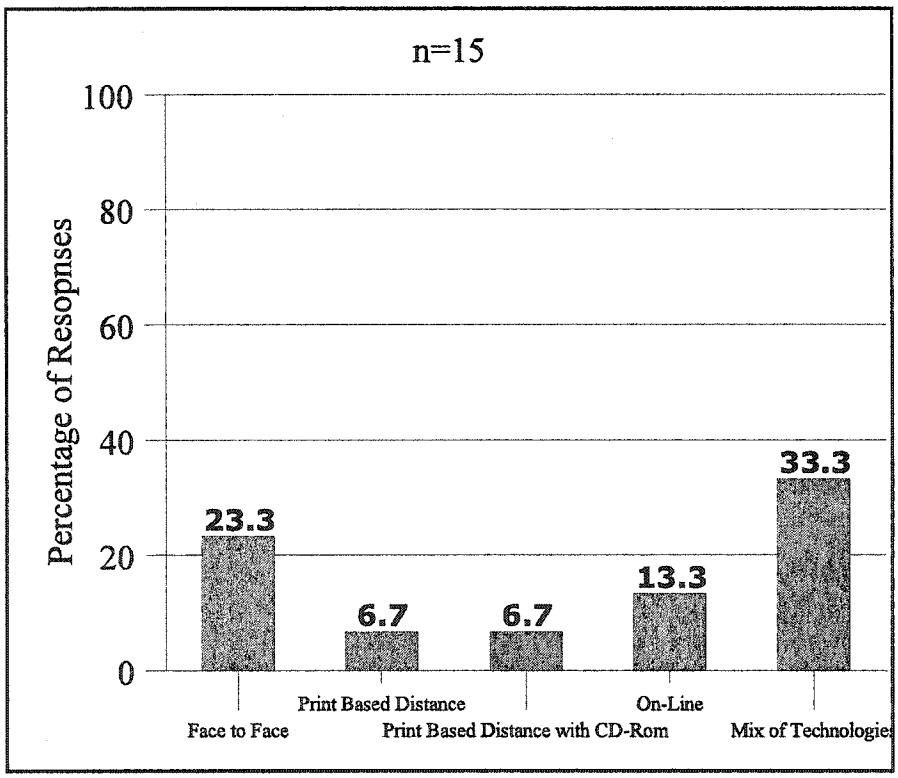

Figure 6. Percentage of participants' responses indicating which delivery methods they prefer.

Students were also asked which delivery method they did not prefer (see Figure 7). Thirteen students responded to this question. Responses to this question overwhelmingly indicated that students do not prefer the print-based distance method while there was only one response each for the face-to-face, print based distance with cd-rom and on-line methods. The mix of technologies and all types of methods received two responses each.

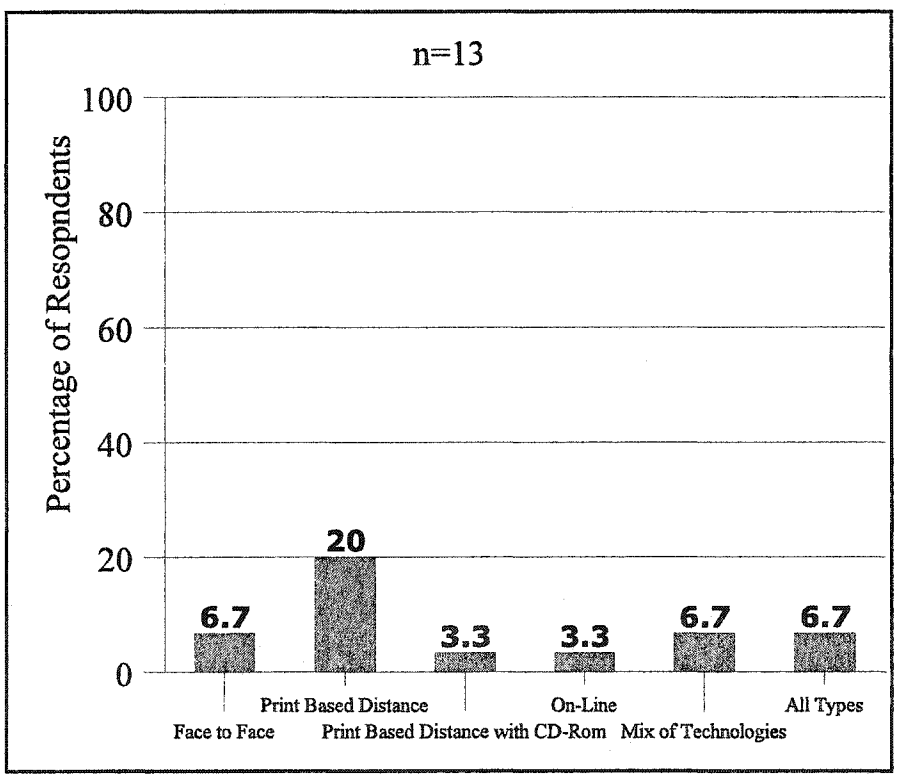

Figure 7. Percentage of participants' responses regarding the delivery methods they did not prefer.

The next question in this series asked the students to comment if they had problems taking their course on-line (e.g. complications with admissions, inconvenient location, technical troubles, delay in receiving mailed materials) (see Figure 8). The majority of students, 18 (60%), indicated that they did not have a problem taking the course on-line while 12 students (40%) indicated that they did, while other problems students mentioned included:

a. Registration;

b. Communication;

c. Logging in;

d. Not able to access from certain places;

Logging in at the beginning of the term seemed to be one of the most common problems.

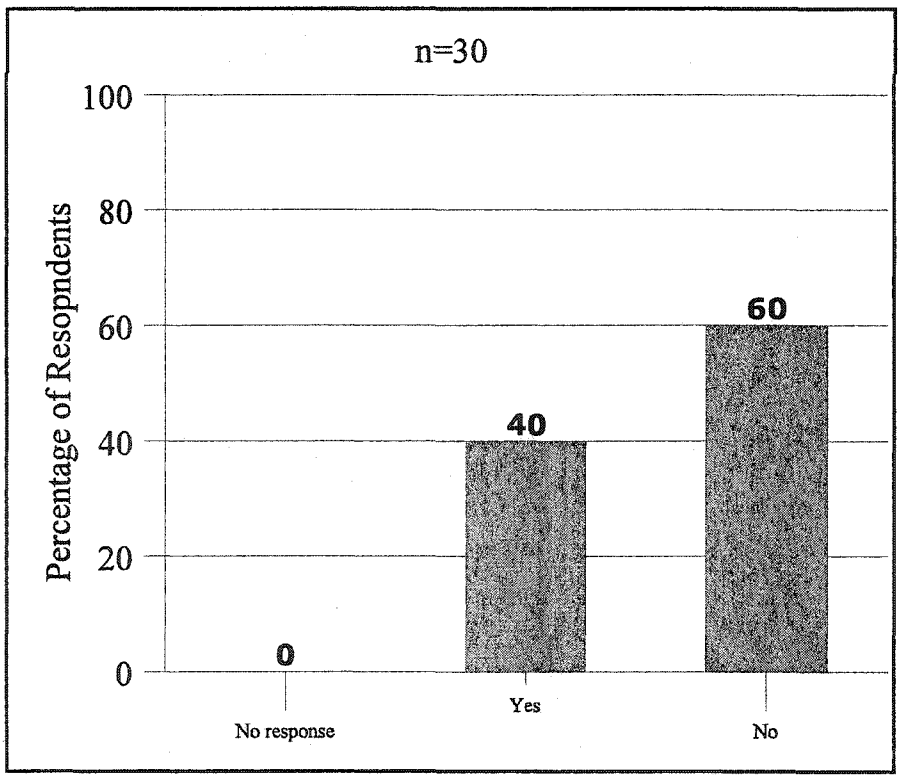

Figure 8. Percentage of participants' responses indicating if they had problems taking the course.

Students were asked to discuss the benefits and drawbacks of taking a course on-line. The most important benefits included:

a. Convenience (12 responses);

b. Flexibility (4 responses);

c. Does not interfere with work (2 responses)

Other benefits which individual students mentioned included:

a. Ability to take additional courses;

b. Increased personal participation;

c. Ability to take a course from home;

d. Ability to express myself better;

e. Contact with students;

f. Ability to reflect;

g. Easy to use.

The students suggested a number of drawbacks to taking a web-based course. These included:

a. Fear of technology;

b. Unsuitable posts to bulletin board;

c. Easy to get behind;

d. Prefer instructor lead;

e. Lack of independence;

f. Audio learner;

g. Lack of "marks" on my paper..

Support services.

The second section of the questionnaire asked students whether they felt that the support services were satisfactory or unsatisfactory (see Figure 9). Support services are the services provided by the institution to students to help them complete their on-line course. They include technical assistance, library facilities (including extension library resources), counseling services, and computer labs.

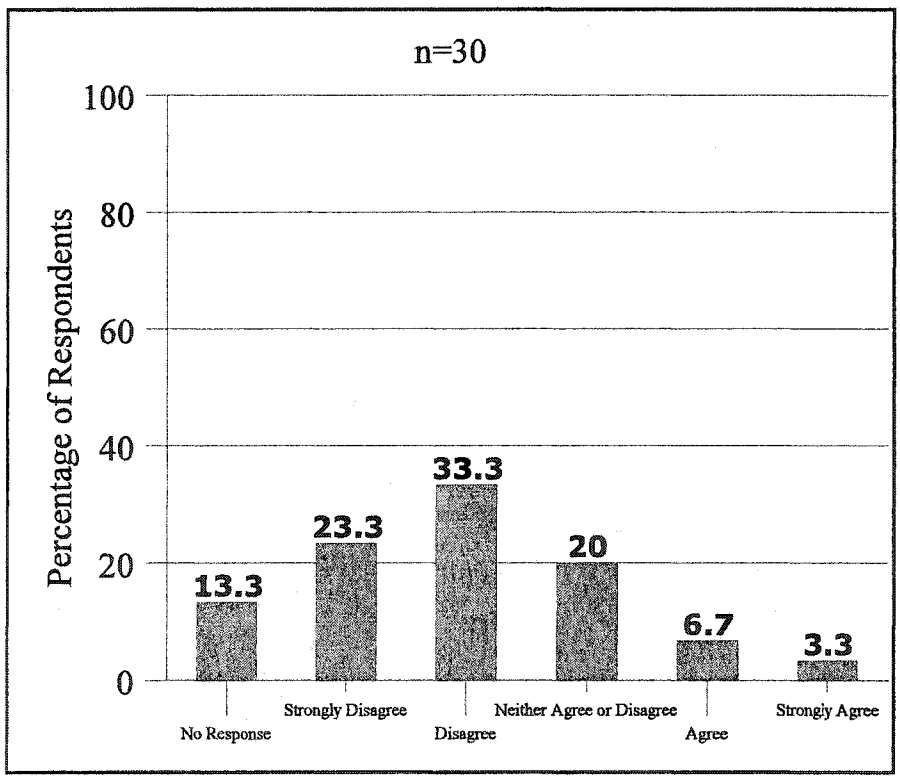

Figure 9. Percentage of participants' responses indicating whether they felt that the support services for the course were unsatisfactory.

Seventeen students (56.7%) felt that the support services were satisfactory and three students (10%) indicated that the support services were unsatisfactory. Six of the students (20%) neither agreed nor disagreed while four students (1.3%) did not respond to this question.

A number of students commented that they did not need support services or that the service they received filled their needs. One student suggested the need for 24 hour service.

Students were asked how the existing support services could be improved. Their suggestions included:

a. More on-line support (5 responses);

b. Access to library (2 responses);

c. Computer lab for business students (1 response).

When students were asked what other support services should be put in place at UPEI, the only suggestions made were for more technology help and workshops which would help students learn how to use the World Wide Web and the WebCT software at the beginning of the course.

Technology-based delivery [2]

The third category of questions in the questionnaire dealt with students' thoughts and concerns regarding their on-line course (see Table 2).

Table 2

Percentage of Student Responses Regarding Technology Based Delivery

Question	n/a	1	2	3	4	5
Worried about the delivery method at the beginning of the course.	3.3	30	16.7	26.7	16.7	6.7
Comfortable with delivery method toward end of course	3.3	3.3	0	13.3	40	40
Technology used in on-line course helps me learn with greater depth of understanding.	3.3	0	20	46.7	20	10
Technology helps me learn more relevant information.	3.3	0	13.3	46.7	23.3	13.3
Technology increases my motivation to work on the course.	3.3	10	20	23.3	30	13.3
The course requires taking more personal responsibility for completion	3.3	10	10	13.3	33.3	30
Not enough training at beginning of course.	3.3	33.3	26.7	20	10	6.7
Able to come to campus less often.	10	13.3	3.3	3.3	43.3	26.7
Learn better using print materials.	3.3	13.3	26.7	40	6.7	1

1 = Strongly Disagree 2 = Disagree 3 = Neither Agree nor Disagree
4 = Agree 5 - Strongly Agree n/a = No Response

[2] For this discussion portion of the results, the positive ends of the scale, " strongly agree" and "agree," and the negative ends of the scale, "strongly disagree" and "disagree," are combined. Figures show actual data.

The first question in the series explored whether students were worried about the delivery method at the beginning of the course. Fourteen students (46.7%) were not worried about the delivery method , while 7 students (23.3%) reported that they were worried about the delivery method. Eight students (26.7%) neither agreed nor disagreed with this statement and one student (3.3%) did not respond.

One student commented, "I wasn't too worried. I knew there would be a way to make it work." Another student responded with, "I was excited, rather than worried. I had hoped that it would be just as I have experienced." One student also mentioned that he/she was not aware that the course was going to be taught on-line until it started, therefore was not concerned at the time.

The second question was asked to determine if the students had become more comfortable with the delivery method toward the end of course. Toward the end of the course, 24 students (80%) felt comfortable with the delivery method. One student (3.3%) still did not feel comfortable with the delivery method while four students (13.3%) did not agree or disagree with this statement and one student (3.3%) did not respond.

Although several students commented on this statement, only one student commented on the comfort level. That student stated, "I am comfortable because I am finished with the course and I didn't have a problem with anything really with the course in the first place."

The third question in this section explored if using technology in this course helped the student learn with a greater depth of understanding. As one student

commented, "The only way for me to draw a conclusion about this would be to take this course in the classroom and compare the two." This may be the reason that 14 students (46.7%) neither agreed nor disagreed. Nine students (30%) believed that using technology helped them learn with better depth of understanding, while six students (20 %) felt that it did not help them. One student (3.3%) did not respond.

Question four explored whether using technology in this course helped the student learn more relevant information. Fourteen of the students (46.7%) neither agreed nor disagreed with the statement. Eleven students (36.7%) indicated that they did agree that the technology helped them learn more relevant information. Four students (13.3%) did not believe that they learned more relevant information and one student (3.3%) did not respond.

Students suggested a number of ways the technology helped them learn more relevant information:

a. Ability to research material at time of doing course;

b. Ability to go back at any point;

c. More recent/relevant course material.

Question five in this series looked at whether technology increased motivation to work on the course. Thirteen students (43.3%) indicated that the technology increased their motivation to work on the course while nine students (30%) indicated that it did not. Seven students (23.3%) neither agreed nor disagreed with this statement and one student (3.3%) did not respond.

One student commented, " it is a fun way of learning, and that motivated me."

Another student made the comment, "I love technology. I prefer to keep current and to try all the new "toys" on the market. Therefore, being able to use one of my toys to assist in the learning process is a bonus." Another suggested that, "Technology itself doesn't motivate me."

Question six asked if this course required taking more personal responsibility for completion than a face-to-face course. Students strongly agreed, both in the response to the question and in their comments that taking a course on-line required taking more personal responsibility for completion than in a face-to-face course. Nineteen students (63.3%) indicated that they agreed with this statement while six students (20%) disagreed. Four students (13.3%) neither agreed nor disagreed and one student (3.3%) did not respond.

The students' comments extended their answers. One student commented, "If you don't take the responsibility to learn the material on your own, you will not do well in this type of course." Another student said, "You have to make yourself do the work in this course, where at other courses you can just show up to class and it is taught to you. But, you have to do the work yourself in this course, and it can be easy to be lazy and not do some work and then you get behind."

In the seventh question, students responded to the statement "I was not provided to enough training in the use of the technology at the start of the course." Seventeen students (56.7%) indicated that they disagreed with the statement that they had not had sufficient training. Five students (16.7%) agreed, Six students (20%) neither agreed nor disagreed and one student (3.3%) did not respond.

Students commented that they had not received much initial training, and they also stated that this training was not required. One student summed up what many had suggested, "There is very little training required for this type of course. If you can turn on a computer and type, you can do this course."

Question eight dealt with whether students came to campus less frequently because of the technology used in the on-line course. Students strongly agreed with this question, 22 students (73.3%) indicated that they come to campus less because of the use of the technology. Five students (16.7%) disagreed with this statement. One student (3.3%) neither agreed nor disagreed and three students (10%) did not answer this question.

All the students who commented on this question indicated that they did not have to come to campus at all or came less because of the technology. As one student put it, "I was able to do my course work and assignments from home and email them to the instructor. This made it unnecessary for me to travel to the campus for classes." Another student commented, "I am not in the country, so I cannot come to campus."

Question nine asked whether the students learned better using print materials rather than working on the computer. Thirteen students (43.3%) disagreed with this statement, suggesting that they learned better using the computer. Twelve students (40%) neither disagreed nor agreed and only five students (16.7%) agreed. One student (3.3%) did not respond.

The majority of students who commented on this statement either commented that it did not matter or they learned equally well with both methods.

The final question in this section asked students to suggest what changes in the technology would be needed. Students suggested a number of changes, including:

a. Anonymous postings;

b. Print screen button;

c. Easier navigation;

d. Use more features of the software.

Response to course [3]

Section three of the questionnaire dealt with students' responses to the course itself (see Table 3).

Table 3

Percentage of Student Responses Regarding Their Response to the Course

Question	n/a	1	2	3	4	5
Instructor provided useful feedback.	6.7	6.7	10	10	23.3	43.3
Instructor provided feedback that was individualized.	10	3.3	16.7	33.3	20	16.7
Instructor did not provided timely feedback.	10	36.7	33.3	13.3	6.7	0
Course objectives were specific and meaningful.	3.3	3.3	6.7	23.3	30	33.3
Grading criteria was clear.	3.3	16.7	10	10	26.7	33.3
Course material was well organized.	6.7	6.7	3.3	20	40	23.3
Course was relevant to my personal or professional needs.	6.7	3.3	10	20	30	30
Course content, objectives and assessment were consistent.	6.7	3.3	6.7	13.3	46.7	23.3
The marking was fair.	6.7	6.7	3.3	10	36.6	36.7
Course materials were at the right level of difficulty.	10	3.3	3.3	13.3	43.3	26.7

1 = Strongly Disagree 2 = Disagree 3 = Neither Agree nor Disagree
4 = Agree 5 - Strongly Agree n/a = No Response

[3] For this discussion portion of the results, the positive ends of the scale, " strongly agree" and "agree," and the negative ends of the scale, "strongly disagree" and "disagree," are combined. Figures show actual data.

The first question in this series dealt with whether the students thought that the instructor provided useful feedback. Twenty students (66.7%) agreed that the instructor provides useful feedback. Five students (16.7%) disagreed with this statement while three students (10%) neither agreed nor disagreed and two students (6.7%) did not respond.

Students frequently commented that the feedback from the instructor was useful. However, one student suggested that, "I would like to have feedback beyond an acknowledgment of my posting. I would like a comment on my ideas especially where I might be missing something or am on the wrong track."

The second question asked whether the students felt that the feed back from the instructor was individualized. Eleven students (36.7%) indicated that the feedback was individualized, while 10 students (36.7%) neither agreed nor disagreed with the statement and six students (20%) did not agree with the statement. Three students (10%) did not answer this question. Some students commented that they received individualized feedback from the instructor while other students indicated that they believed that the feedback from the instructor was intended for the whole class. One student commented, "All responses were delivered to the group, just answering my question", while another student suggested that, "I think that the feedback is individualized, and yet applicable to all."

The third question explored whether the feedback was timely. The majority of students, 21 (70%), indicated that they received feedback in a timely manner while only two students (6.7%) indicated otherwise. Four students (13.3%) neither agreed nor

disagreed with this statement and three students (10%) did not answer.

Question four looked into whether the course objectives were specific and meaningful. Nineteen students (63.3%) felt that the course objectives were specific and meaningful while only three students (10%) disagreed. Seven students (23.3%) neither agreed nor disagreed with this statement and one student (3.3%) did not respond. One student stated, "The objectives were explained well and I often referred back to them throughout the course."

The fifth question explored whether the grading criteria were clear. Eighteen students (60%) stated that the grading criteria were clear. Eight students (26.7%) felt that the grading criteria were not clear, while three students (10%) neither agreed nor disagreed and one student (3.3%) did not answer the question. Students' comments indicated that they understood the grading criteria from the beginning of the course.

Question six determined whether the course materials were well organized. Nineteen students (63.3%) agreed that the course materials were well organized while only three students (10%) disagreed with this statement. Five students (16.7%) neither agreed nor disagreed and two students (6.7%) did not answer.

One student commented that, "each section built on the previous section." Five students commented on this question, and all of these students confirmed that their course was well organized and easy to follow.

The seventh question dealt with whether the students believed that the course materials were relevant to their personal or professional needs. Eighteen students (60%) agreed with this statement while four students (13.3%) did not agree. Six students (20%)

neither agreed nor disagreed, and two students (6.7%) did not respond.

The eighth question dealt with students' responses to whether the course objectives, content, and assessments were consistent. Twenty-three students (76.7%) agreed that the course objectives and assessments were consistent, while only three students (10%) disagreed with this statement. Four students (13.3%) neither agreed nor disagreed and two students (6.7%) did not answer.

Question nine explored whether the students believed the marking was fair or not. Twenty-one students (70%) agreed that the marking was fair while only three students (10%) indicated that it was not fair. Four students (13.3%) neither agreed nor disagreed with this statement while two students (6.7%) did not respond.

The tenth question dealt with students' responses regarding the difficulty level of the course content. Twenty-one students (70%) agreed that the content was at the right difficulty while two students (6.7%) did not agree. Four students (13.3%) neither agreed nor disagreed and three students (10%) did not respond.

One student commented that, "Yes, I found it challenging and enjoyed the material", while another student commented that "the content maybe a little low for fourth year."

The eleventh question explored the rating of course materials (see Figure 10). Two students (6.7%) did not respond to this question. Three students (10%) rated the course material as fair, six students (20%) rated it as average, twelve students (40%) rated it as good and seven students (23.3%) rated the course material as excellent.

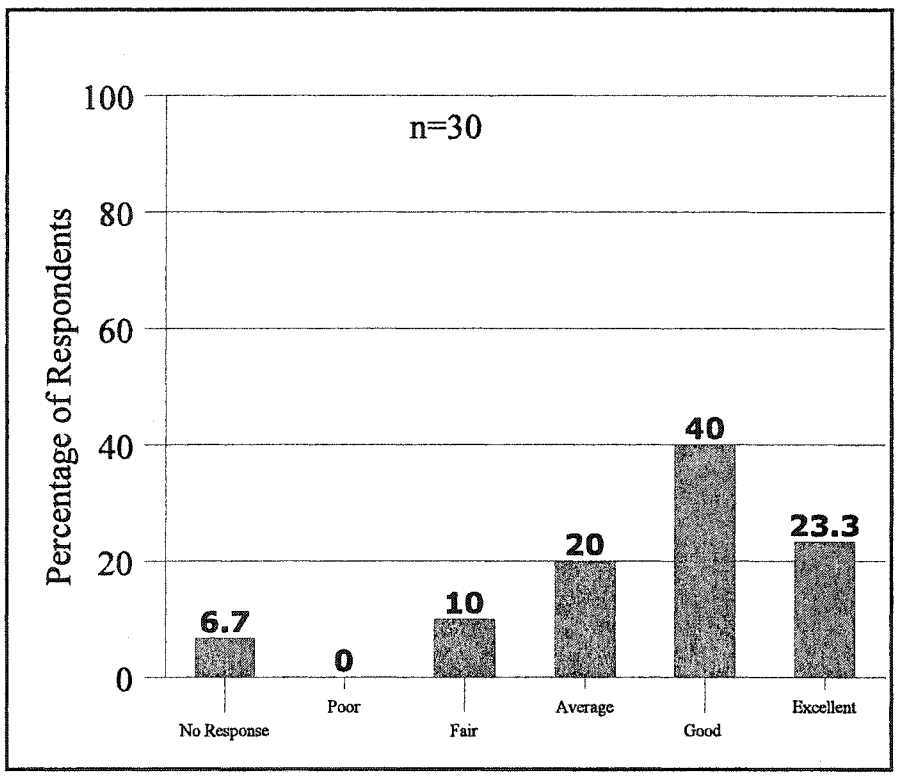

Figure 10. Percentage of participants' rating of course materials.

Students were asked to discuss the course and the course materials with regards to what worked well, what might be improved, and why?

Five students responded that the course worked well and that it did not need to be changed. Other students suggested the following changes:

a. Content was limited and could be expanded;

b. Pages need to load faster after the number of postings accumulated. (As the number of postings to the bulletin board increased the time it took to load the page slowed down.);

c. More participation by instructor;

d. More links to web resources.

Time demands

This section dealt with time demands placed on the students. When asked how much time they spent on the web course, the students suggested that they spent an average of 4.8 hrs per week (see Figure 11). When asked if they spent more or less time than they would have in a traditional course, two students (6.7%) did not respond, eight students (26.7%) responded that they spent more time, twelve students (40%) indicated that they spent less time, six students (20%) responded that they believed that they spent the same amount of time on the course while two students (6.7%) were uncertain as to whether they spent more or less time on their on-line course.

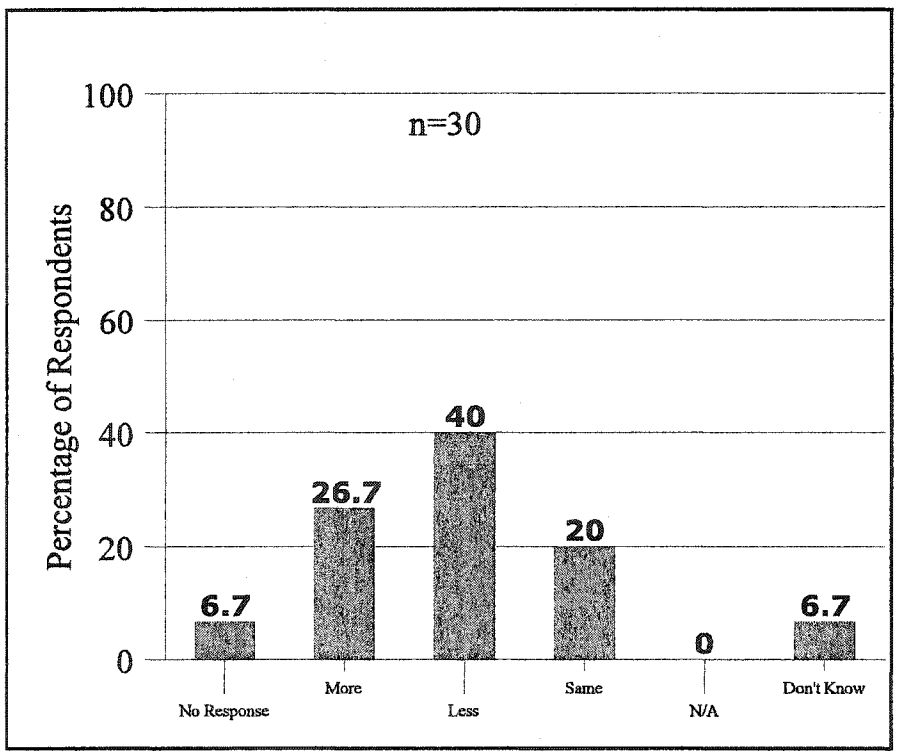

Figure 11. Percentage of participants' response to whether they spent more or less time than in the traditional course.

Students were asked if they spent more or less time than they expected (see Figure 12). Two students (6.7%) did not respond to this question while one student (3.3%) did not feel that the question was applicable. Four students (13.7%) believed that they had spent more time than they had expected to spend on the course, and five students (16.7%) believed that they had spent less time than expected. Six students (20%) thought they had spent about the same amount of time as they had expected to spend on the course, while twelve students (40%) did not know if they spent more or less time than they had expected.

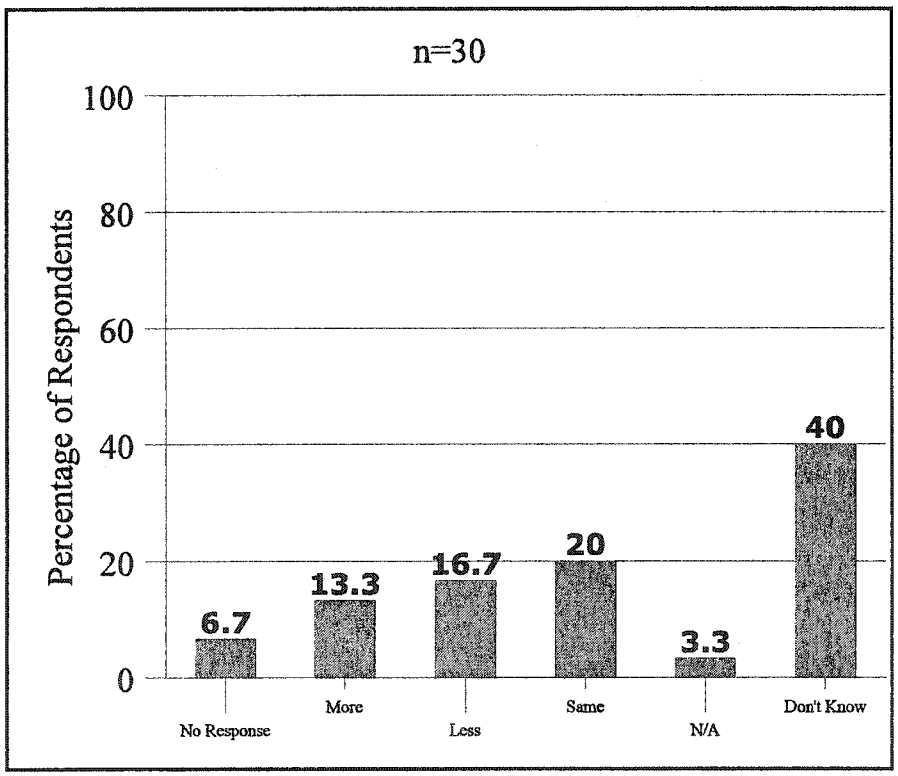

Figure 12. Percentage of participants' response to whether they spent more or less time on the course than expected.

Students were asked how long it would take them to travel to the university if the course were held there, but 22 students (73.3%) did not answer this question. Two students (6.7%) stated that they were out of province and could not attend class. One student commented, "I am not in the country so I cannot come to campus." For the other six students (20%) who answered the question, the average time it took them to travel to the university was 1.5 hours.

Question three explored the students whether students believed the course was not worth the time it took to actually complete the course material and assignments (see Figure 13).

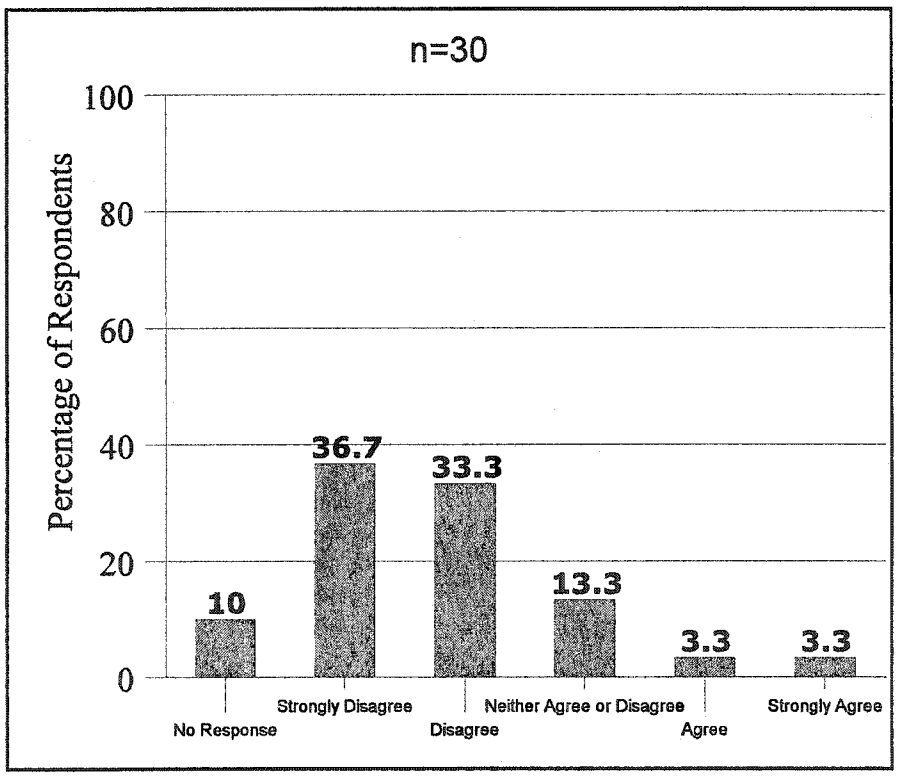

Figure 13. Percentage of participants' responses to whether the course was not worth the time it takes to complete.

Twenty-one students (70%) responded that the course was worth the time it took to complete while only two students (6.7%) indicated that it was not worth their time. Four students (13.3%) neither agreed nor disagreed with the statement while three students (10%) did not answer the question.

Information about yourself

This section asked the students to share information about themselves.

Table 4 shows the students' highest school grade completed.

Table 4

Students' Highest Grade Completed

Highest Grade Completed	Number of Students	% of Students
No response	2	6.7
High school completed	4	13.3
Some post secondary credit	12	43.3
Certificate	1	3.3
Diploma	3	10
Bachelor's Degree	7	23.3
Master's Degree	1	2.3

Figure 14 shows student status.

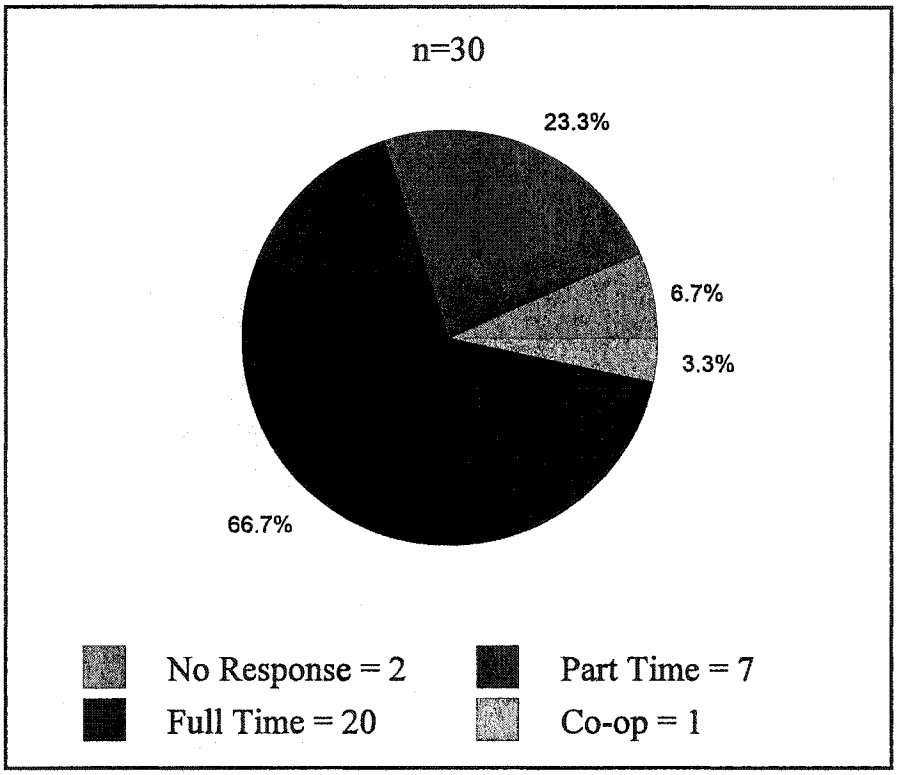

Figure 14. Student status, full-time, part-time or in a co-op program.

Table 5 shows how many courses the students were enrolled in at the time they took the on-line course.

Table 5

Number of Courses In Which Student is Enrolled

Number of Courses	Number of Students	% of Students
No Response	1	3.3%
1	4	13.3%
2	5	16.7%
3 or more (Full Time)	20	67.7%

Table 6 shows the importance students ascribe to certain aspects of the course.[4]

Table 6

Percentage of Student Responses Indicating Level of Importance Assigned to Certain Aspects of the Course

Question	n/a	1	2	3	4	5
Importance of obtaining qualification or credit.	3.3	6.7	0	6.7	23.3	60
Importance of being interested in the subject.	6.7	6.7	3.3	26.7	26.7	30
Importance of having contact with distinguished instructors.	6.7	16.7	6.7	30	26.7	13.3
Importance of relevant course content to work life.	6.7	0	13.3	16.7	30	33.3
Importance of being able to socialize with others.	6.7	13.3	13.3	10	46.7	10
Importance of personal growth	6.7	3.3	3.3	10	33.3	43.3
Importance of being able to show themselves that they can complete the course.	6.7	6.7	6.7	20	36.7	23.3
Importance of receiving high grades	6.7	6.7	6.7	13.3	46.7	20

1 = Strongly Disagree 2 = Disagree 3 = Neither Agree nor Disagree
4 = Agree 5 - Strongly Agree n/a = No Response

[4] For this discussion portion of the results, the positive ends of the scale, " strongly agree" and "agree," and the negative ends of the scale, "strongly disagree" and "disagree," are combined. Figures show actual data.

Students were asked to rate the importance of the statement, "to obtain the qualification is important." Twenty-five students (83.3%) indicated that taking the course to obtain credit was important. Only two students (6.7%) felt that this was not an important goal while two students (6.7%) neither agreed nor disagreed with this statement and one student (3.3%) did not respond.

Students were asked to rate their interest in the subject/content for its own sake. Seventeen students (56.7%) indicated that they agreed that it was important to be interested in the subject, while three students (10%) indicated that they were not interested in the subject/content. Eight students (26.7%) neither agreed nor disagreed and two students (6.7%) did not respond.

Students were then asked how important they felt that contact with distinguished instructors was when considering the course. Ten students (33.3%) agreed that contact with distinguished instructors was important, seven students (23.3%) indicated that this did not matter. Nine students (30%) neither agreed nor disagreed and two students (6.7%) did not respond to this question.

One student commented, "I prefer good instructors who care about their students, rather than 'distinguished' instructors."

The next question asked the students to rate how much the content was relevant to the work I do/will do. It can be seen that the majority of students, 19 (63.3%), felt that the course content was relevant to their work while only four students (13.3%) did not. Five students (16.7%) neither agreed nor disagreed and two students (6.7%) did not respond to this question.

The next question explored whether being able to socialize with others was important. Seventeen students (56.7%) indicated that it was important to socialize with others during the course while 8 students (26.7%) did not feel that it was important. Three students (10%) neither agreed nor disagreed and two students (6.7%) did not respond.

One student in particular felt that socializing was very important to his/her learning and commented, "Socializing brings enjoyment and fulfilment, without enjoyment and fulfilment, my learning capacity would be lacking." Another student commented, "As a mature student, I'm not interested in socializing with other students, most of whom would be less than half my age, but it would be interesting to be able to put faces to names."

The next question explored students' responses about whether personal growth and broadening personal perspectives was important. Students felt that personal growth was a very important factor in their education, with 23 students (76.7%) agreeing with the statement and only two students (6.7%) disagreeing. Three students (10%) neither agreed nor disagreed and two students (6.7%) did not respond.

One student felt very strongly about this question and commented, "This has always been an important factor in my life - always look to grow and learn."

The next question dealt with student's responses to the statement "To show myself I can do it is important." From this data we can see that the students feel that it is important that they could prove to themselves that they can complete the course. Eighteen students (60%) agreed and only four students (13.3%) disagreed. For six

students (20%) this did not matter and two students (6.7%) did not answer the question.

The next question looked at whether student felt that it was important to get high grades. Many students thought getting high grades was important with 20 students (66.7%) agreeing and only four students (13.3%) disagreeing. Four students (13.3%) neither agreed nor disagreed while two students (6.7%) did not respond.

Students were asked where they were able to access a computer to complete the course. More than one response was allowed for this question (see Figure 15). Students' responses showed that home was the place where they had the greatest access to a computer with 21 responses, while work was second with 13 responses and on campus followed a close third with 12 responses. There was one response for a student who had to access a computer some where else in the community, while three students did not respond to this question.

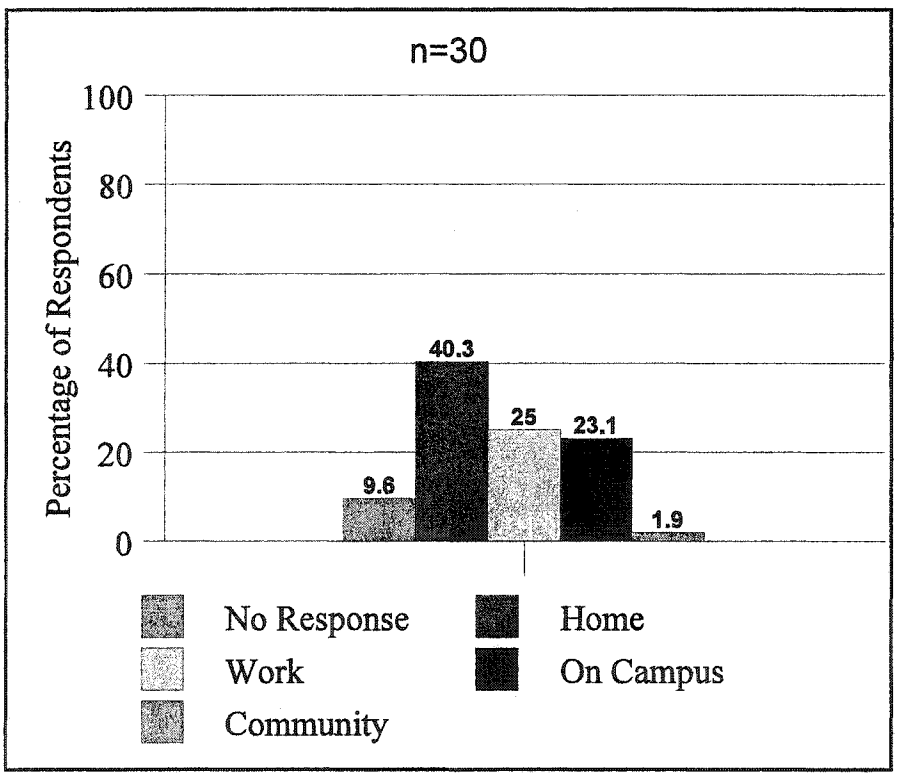

Figure 15. Percentage of participants' responses indicating where they where able to access their course.

Table 7 shows what tools students had access to for study purposes.

Table 7

Percentage of Student Responses Indicating what Tools were Available to Them

Tool	At Home (Percentage of students)	In the Community (Percentage of students)
No Response	3.3	26.7
Computer	90	73.3
WWW	83.3	70
VCR	73.3	53.3
Cassette	60	50
E-Mail	83.3	73.3

WWW = worldwide web VCR = video cassette recorder E-Mail = electronic mail

In summary, the results show that on average 27.7 students (92.4%) responded to the statical questions while an average of only 10 students (33.3%) responded to the open-ended questions. On average 18 students (60%) responded favourably to the questions while 4.5 students (15%) responded unfavourably and 5.7 students (18%) neither agreed nor disagreed with the questions. The majority of students, 21 (70%) were female. This may be due to the fact that 19 participants (65%) were from the Nursing 303 class.

Interviews with Students

Interviews were held with four students. The four interviews ranged in time from fifteen to forty-five minutes. Students were asked questions regarding expectations and learning for the course they were taking (see Appendix E). Three of the students were in the upper level courses and one was from a first year course. Only one student indicated that he/she had taken a web course prior to this one. All four students had taken courses at UPEI before.

When students were asked why they enrolled in the on-line course instead of the face-to-face course, three of the four students stated that it was because of the convenience and that it suited their schedule better, while the fourth student did not realize until the course start date that the course was on-line. One student commented:

> I like the convenience of the on-line. You know you are not compelled to go to class Monday, Wednesday, Friday, whatever, you just do the course when it is convenient for you to do the course. So that was the biggest thing.

When asked what their expectations were for the course, two of the four students said that they did not really have any expectations other than what they would have had with the face-to-face course. The student who had taken web courses prior to this course stated:

> I knew it would be different than taking an in-class course because I had already

taken one before I took the one last fall. But the first time I took a course on-line I really didn't know what to expect. It was just to see what it was like. This was the only reason I took it and then once I took the first one it kind of piqued my interest and I could do it at night. Expectations, I expected it to be, I had a feeling that it was going to be more of a chat than a structured course, which I liked.

I next asked the students if they felt their expectations were met. This was interesting because all four students responded yes even though two of the students indicated that they did not really have any expectations for the course. I also asked how they felt that their expectations were met. One student responded by saying, "I found that the web-based course was quite adequate for my needs and it definitely met my expectations. I definitely would not want to change it." Another student had this to say:

Oh yes, they were met, because I did get my point across on every thing I wanted to. Yes! Plus it is easier to get feedback from the professors. They don't have to call you into an office one-on-one. They can type it on-line and send it off to you in a personal e-mail or on the message board, whichever way they want to do it. You get feedback almost instantly instead of having to make an appointment and see the professor one on one. I found the bulletin board better because if you were in class it was a passing statement from a professor or student you don't have a chance to think about it so you just have to pass it by or say nothing.

> Where this way I can say "yes." I can read the comment today, think about it for a while, and then write what I want to write or look-up something before I said anything and then type it in later.

All four students indicated that the discussion board was one of the main features of the on-line learning that helped them learn best. One student clarified this by saying, "I had a chance to know what I was going to say before I said it. Also, the fact that the professor would put in his point of view." Another student during the interview said:

> Anybody that might be shy or a bit shy or nervous about speaking in public or voicing their opinion in class because nobody knows exactly who they are or they might not recognize the name. So they have no problem with voicing their issue or voicing their suggestion in a web-based format. So it kind of breaks down a lot of the barriers for shyness or for anybody that might be scared to speak up in class. You are not singled out.

Other features the students mentioned that helped them learn were:

a. Notes that were provided;

b. Links to other web sites for more information;

c. Professors' contributions to the bulletin board discussions.

All four students felt that they had learned the course material that was presented to them. One student indicated that he/she was a text-based learner and that there was

plenty of text both in the course content presented and in the discussion with the other students. This student also indicated that there were many links to sites with more information if needed. Another student responded by saying,

> Oh yes, I had to. Like I said because you have to put up your answers to every question for every chapter and for every question that is asked at the time. Where as in the class room the only time you do that is before or during an exam. ...this way it is constantly through the course because you had to read it and you had to respond to it because that was the way you got your mark.

When asked what they thought could be changed to help them learn better, one student indicated that there was nothing to change. The other three students offered suggestions such as:

- a standard format for on-line courses that the instructors should use;
- more interactivity, more structure;
- one or two face-to-face classes;
- less idle chit chat;
- perhaps more color and graphics.

One student added:

> I found that there were a lot of comments such as "I agree", "I agree with you" comments. That doesn't help anybody.

All four students felt that their course was suitable to be taught on-line. The students believed that discussion or lecture-based courses were good courses to be offered on-line, while math and science courses would probably not be appropriate because of the need for so many examples. One student actually responded with the following comment:

> This course here, I think it was a really good course to take as an on-line course for the fact that it is offered as a fourth year business course so that a lot of the students might not have time to do in class work because they have other commitments or have to finish other projects. But, it gives more chance of discussion. Anybody that might be shy or a bit shy or nervous about speaking in public or voicing their opinion in class (because nobody knows exactly who they are, or they might not recognize the name) they have no problem with voicing their issue or voicing their suggestion in a web-based format. So it kind of breaks down a lot of the barriers for shyness or for anybody that might be scared to speak up in class. You are not singled out.

My final question to each student was, "Do you have anything to add that we haven't already discussed?" Three students responded that the course was fun and all said that they would definitely take another course on-line if the course they needed were available. The potential for students, who were shy or quiet to express their opinions more easily, was stressed. All students commented on the fact that the course was

wonderful for people with time restraints and that they liked the ability to do the course at home. Two students hoped that UPEI would continue to offer on-line courses and that the number offered would grow. One student also indicated that it would be an excellent way to get the degree without having to worry about coming to class.

Interviews with Instructors

The six instructors who offered these on-line courses agreed to interviews. Interviews ranged in time from forty-five minutes to just a little over an hour. During the interview, the instructors were asked eight questions regarding the delivery of their web course (see Appendix F).

When asked why they chose to deliver their class on-line, three instructors responded by saying that there was some grant money available in 1999 and 2000 for instructors wanting to create a web course. These instructors applied for a grant, received it, and then created a web course. However, this was not their only reason for creating the web course. Other reasons included:

a. Accessible from somewhere else (3 responses);

b. Interest in technology (3 responses);

c. Would be ideal for students (2 responses);

d. Wanted to learn about web courses/ be an innovator (2 response);

e. Previous experience with web courses (2 responses);

f. Personal challenge/career related (1 response);

g. These courses are the wave of the future (1 response);

h. Not enough time to do everything in the classroom (1 response);

i. Some of us at UPEI should be offering courses in this manner (1 response).

The instructors had mixed feelings with regards to how their on-line course compared with their face-to-face version. Although not all the courses had a face-to-face counterpart running at the time of this research, all the instructors had instructed the course both on-line and face-to-face. One instructor compared the on-line version with the face-to-face version of his course by saying, "I think that I tend to view the on-line course as far as the kind of material we are getting, is less, is like almost a half or a third of what they are getting in the classroom." Another instructor stated:

> This course was taught for three years in a regular classroom before I offered it on-line. And, the interesting thing is that we did not change the textbook, we did not change the basic format of the courses...So I changed some of the assignments in order to enhance the weekly class participation. But, basically this was the same course that I had taught in the classroom for three years. I was surprised at how well it worked, but it did not work as well as the face to face.

Four instructors talked about the fact that having the course on-line rather than face-to-face allowed the quieter students to participate more. One instructor explained:

> One positive thing that comes out of the on-line version is the students who are introverted or don't feel that they have important things to say for some reason or if you are in a class where there are dominant spokespersons, then the quiet student has an opportunity with the on-line version of the class to participate and contribute. In my course evaluations that's what a lot of the students say, the ones that are quiet say that they have a voice now and they'd never had that before, so I think that was the key benefit to the whole thing.

Two other instructors felt that the on-line course was radically different than their face-to-face version. In their face-to-face version they stood in front of the class and lectured while in the on-line version there was an enormous amount of interaction between students and the students had to contribute more to their learning.

> It's radically different, in that the traditional face to face teaching style particular at the university is what I would call sage on the stage. So that means that the professor grinds through in lecture form the content of what the students are meant to get....the texts and everything is given in other words the kids have to have read the text.

This instructor continued by saying:

> You get an enormous amount of interaction among the students, very little

between the instructor and the students and a great deal between the students so you have a much more interactive view."

One instructor was not interested in comparing the two versions of the course but rather wanted to stress that both versions had their advantages and disadvantages. Then this instructor went on to say:

> The thing I find advantageous on-line is that people have an opportunity to reflect on their responses. So if you put up a discussion question you can be much more demanding or much more thoughtful than you would normally do in the classroom because, as I say, students have much more time to think about it, and write an answer and think about their answer and edit their answer. On a straight comparison I find that on-line is better in terms of encouraging, particularly in undergraduates, to encourage more writing. If you ask them in the classroom to submit a paper to you the next day of say, about 500 - 1200 words. Right? The response to something - well it's a great big deal to; but they are doing it on-line, it seems, all the time and they don't really notice that they are doing it.

Another instructor also found that he/she had to eliminate many of the technical issues in the course, make it more discussion based and also make the assignments more web-related.

When asked how the instructors thought that the students responded to their on-

line course, all six instructors agreed that most of the students responded favorably. Three of the instructors again talked about the way in which the students who were more shy or quiet participated more and were more active in the on-line course. When I asked why this was the case the instructors suggested they responded by saying that they thought it was because the students had more time to reflect or think about what they wanted to say before they posted it. Three instructors also stated that most of the students wrote much more in the on-line course than they would have in the face-to-face version. Four instructors talked a little about the need for the students to have more self discipline when completing an on-line course. These instructors found that some of their students would let their work slide and found it very hard to catch up. One instructor stated, "Some of them just let the work slide and are never able to catch up and so they either didn't do well in the course or they failed."

One instructor stated that the marks seemed to be lower in the on-line course while another instructor found that the marks for his/her on-line course were 2-3 points higher than in the face-to-face version. One instructor stated that in the end of term course evaluations, students commented that they had fun completing the course; they liked the ability to learn from others, and that they could easily go back and re-read or re-do something that they were having difficulties with.

The instructors felt that when it came to the types of concerns that the students had with regards to the on-line course, that for the most part they were the same type of concerns that they found in face-to-face courses. Several concerns, however, not found in a face-to-face class were:

a. Log-in problems (3 responses);

b. Not enough participation by instructors (2 responses);

c. Students would like to have some face-to-face classes (2 responses);

d. Computer related problems;

e. Confidentiality issues using bulletin board;

f. E-mail;

g. Students unsure what to expect.

Four instructors felt that the students learned what they were expected to learn, with one instructor responding with the following comment:

> They actually learned more. And the reason was...there was a weekly hand-in Monday morning before the seminar started. They actually had to hand-in answers that would demonstrate that they had read the material. I never did that with a face to face version. .... I built in this new assignment which actually forced all the students to actually do the readings and therefore they learned more in the on-line version of the course.

One instructor felt that they did not get as much out of the on-line course and that they were at a disadvantage compared to those who took the face-to-face version of the course. Another instructor felt that it was hard to measure learning and suggested that the students themselves could best answer the question. There were two instructors who also indicated that they believed that most of the students learned more from the on-line

course simply because they enjoyed doing it. One instructor said, "I think that some of them learned more simply because they found it more fun to do the on-line version, so they learned more."

Instructors gave a number of reasons that offering courses on-line is worthwhile. These reasons included:

a. Flexibility and accessibility of the course/allows students to study from anywhere at anytime (6 responses);

b. Use of the bulletin board allows students that cannot come to campus to take the course (Working, parents, time constraints, travel distance, disabled were some of the examples given) (6 responses);

c. Allows quieter students to participate more (4 responses);

d. Students participate differently than in the classroom (3 responses);

e. Students learn how to write differently (2 responses);

f. Allows students to get comfortable with technology (1 response);

g. Good for students that only want to go over material that they do not already know (1 response).

One instructor also made the point that it was not only convenient for the students but for the instructors themselves. They also did not have to be on campus to see what the students were doing or respond to the students.

> First of all for the same reasons that it is worth while to me. I, like many other people, have a very busy life and I do not wish to be constrained by having to turn

up in class in person at set times and at set days during the week. It doesn't fit my lifestyle at all, and not only does it not fit my lifestyle it doesn't fit it in terms of being here on Prince Edward Island but it inhibits my traveling and I travel a lot. And, I found that by doing this I can be in Thailand and be participating as the professor in the course and I will be away in May in France and England and I will be running two courses at the same time and this gives me the kind of freedom from that point of view.

Instructors were split on whether they felt that students spent more time on the on-line course then they would have if the course were taught face-to-face. Three instructors suggested that some students spent about the same amount of time on the course while others spent more or less time. Two instructors believed that the majority of students spent more time on the course. One instructor was even very enthusiastic about this and said:

Oh more, and so do I. Because you know what? I go in Monday morning, I turn on my computer and log on to the course. I will respond to whatever and make some points and stuff and then I just minimize the course. I never take it off, I never log off, I leave it there. Throughout my day when I am in the office, If I have five minutes of down time, if I am not doing anything I am in the course, and what I have found is, and students tell me the same thing, that I was in class more every week than I would have been in the face-to-face class.

One instructor felt that the students spent less time. This instructor went on to say:

> I do have access to peek and see how many times they have accessed and entered and I have actually have been appalled at how few the hits [as students accessed the course.] I will look at the dates, when was the last time they came on and "Gee, it was a long time ago" and I mean, a couple of weeks or a month.

Finally the instructors were asked if they had anything they would like to add. While the instructors went on to talk about what they would like to see done with regards to web courses at UPEI and various other things regarding web courses, only several comments were made with regards to students' learning. One instructor felt that learning was limited on the web, limited in what could be taught and limited in what could be learned. Two instructors also talked about cheating and the problem that they were having with students cheating in their course. They believed that this was an issue that should be addressed and wondered what if could be done to control this. Two instructors also mentioned that they had an increased enrollment in their courses when they were offered on-line. This may not address the issue of whether students are learning what they are intended to learn, but it does show that more students are enrolling and placing themselves in a position to learn..

Summary

The findings of this study emerged from a questionnaire and qualitative interviews. The questionnaire provided statistical data as well as qualitative data from open-ended questions. The data from the interviews provided more qualitative data to provide more depth of understanding. While the data gathered from the questionnaire generally explored the students' own experiences in the on-line course, the data gathered from the interviews attempted to go into more depth regarding the students' expectations and what might be changed in the course to make it better.

Looking at the common threads from the three sources of data, it was found that 25 of the students (83.3%) responding to the questionnaire, all four students who were interviewed, and the six professors who were interviewed indicated that they enjoyed the flexibility and convenience that the on-line course gave them. Positive response to the on-line course was also evident in all three types of data with 17 students (56.6%) responding on the questionnaire that they would take another course using this delivery method, and 24 students (80.0%) responding that they were comfortable with the delivery method by the end of the course. The four students who were interviewed indicated that they learned the course material presented to them, that they thought that taking an on-line course was fun and that they would definitely take another course on-line if it were a course they needed for their degree. The six instructors believed that the majority of students responded favorably while two instructors believed that the majority of students liked the on-line course better than a face-to-face class.

Interaction in the on-line course was an issue in all three sources of data. On the questionnaire, students were asked four different questions regarding their interactions within the course. Twenty students (66.6%) indicated that they were able to interact with the instructor as much as they wanted and that their interaction with the instructor and other students was relevant to their studies. Twenty-four students (80%) indicated that they could interact with other students as much as they wanted. As indicated by the students and instructors who were interviewed, most of this interaction occurred on the bulletin board. Four of the instructors indicated that there was a large number of postings and interaction on the bulletin board, while all four students who were interviewed indicated that the bulletin board was a very important tool for interaction with others and for helping them learn. The three sources of data provided the study data about students' experiences and expectations in an on-line course.

Chapter 5

Discussion

Summary of Findings

The objective of this study was to explore what students' expectations and experiences while taking an on-line course from both the perspectives of the students and their instructors. As well, the study explored how students thought the course might be changed to improve their on-line learning experience. This chapter will discuss the key findings of the research, the limitations of the research and recommendations for future on-line education. The data from all three sources, including the student questionnaires, the interviews with students, and interviews with instructors, indicate that the majority of students reported the on-line experience was a positive one. The four students who were interviewed also indicated that they believed that there is a continuing need for some form of on-line education to be offered at UPEI.

The research questions investigated in the study were the following:

1 When a student enrolls in a web-based course, what are the students' experiences while learning course contents in an on-line course?

2. When a student enrolls in a web-based course, what are the students' expectations towards learning course contents in an on-line course?

3. Do students meet their expectations with regard to learning the course

contents? If not, what could be done to support these students so they are able to meet their expectations and have a better on-line experience?

The first question investigated students' experiences while taking their on-line course. The majority of questions in the questionnaire dealt with different aspects of the students' experiences. What the study results revealed was that the majority of students indicated that they were happy with their on-line experience and enjoyed taking the course on-line. What the students appeared to like best about the course were the benefits that taking a course on-line gave them. Some of the benefits the students mentioned included: convenience of the course, flexibility, the course does not interfere with their work, increased personal participation, students are more open, contact with other students, students have the time to reflect, and the WebCT software was easy to use. The six instructors also indicated that they believed that the majority of students enjoyed the course and had a positive learning experience while taking the course. Instructors based their assumptions on the students' comments throughout the course, results in the course, and on students' comments on the final course evaluations.

The second question focussed on students' expectations towards learning course materials on-line. Approximately half the students who took part in the research indicated that they were worried about taking the course on-line prior to the start of the course, yet by the end of the course the majority of the students indicated that they felt comfortable with the on-line delivery method. This results concurs with the findings in studies completed by Bollentine (1998,) and Bee and Usip (1998). These researchers

reported that fear and resistance to new technologies by both students and instructors were a disadvantage of on-line learning.

During the interview phase of the research, the four students were asked to describe their expectations for the course. From the responses it was found that three of the four students thought that the course would be very similar to a face-to-face class but with more discussion and with perhaps a little more interactivity. One student said, "I was expecting a little more discussion, but I wasn't expecting really too much difference."

The third question focussed on whether the students' expectations with regards to learning the course content were met. If not, what might be done to support those students so expectations could be met? Students were asked this directly in the interview process, and several question in the questionnaire also dealt with this topic. Students were asked if technology helped them learn with greater depth of understanding and if the technology helped them learn more relevant information. Fourteen students neither agreed nor disagreed with this question questions while the majority of the remaining students agreed with the statements. These results are similar to those found by Bartolic-Zlomislic and Bates (1999) and Curtain (2002). The responses by the four students who were interviewed to the on-line course and learning the course content questions were very positive. Their responses confirmed that their expectations were met. Although when asked if there was anything that could be changed or done differently to help them meet their expectations, all four students stated that there was nothing they could think of that could be done. However, after being asked if there was anything else they would

like to add about their experience in their on-line course, one student suggested that there be a standard format for instructors to follow, and that more structure, interactivity and graphics would be beneficial and add to the learning experience. This suggestion for more interactivity and graphics in the course builds on the findings of Rogers and Laws (1997) who found that different presentation modes allowed students to participate in the modes that they enjoy the most, thus giving them a better learning experience. Two students also indicated that they would like to have a face-to-face meeting at the beginning and at the end of the course. When asked "When you consider the course and the course materials, what works well? What needs to be improved? Why?" Six students had positive comments regarding the course and that it worked well the way it was. One student commented that he/she would have liked to have more interaction with the instructor and another student would have liked the instructor to have kept the URLS to other web sites more current, as well as having the URLs linked to the other web sites, not just text.

Major Themes

In this study the major themes that emerged from analyzing the interview and survey data were: flexibility which occurs when taking an on-line course, accessibility to the course, interaction with others using the bulletin board, ability of students to express themselves, and the ability of students to learn from other students as well as from the instructor.

Flexibility

The most frequently discussed feature of the course by students and instructors alike was the flexibility that it gave. Flexibility in the on-line course refers to the ability to work on the course at a time, place and location that is convenient. Students commented over and over again how they liked the flexibility that the on-line course gave them. Many of the students taking the courses were either employed, or in the case of the co-op and nursing students, off the university campus, and in the community on a work term. The flexibility of the on-line course allowed these students to complete the course when and where they could fit in the time. The instructors commented, as well on their appreciation of the flexibility that the course gave them. They were not tied to a certain time to instruct the course and they could even do it from home or when out of province. The results indicated that flexibility appeared to be the most important benefit of the course. This finding agrees with a study completed by Bates and Ruhe (1999) who found that "For those students who responded to the survey, flexibility was the most important benefit, of the on-line delivery mode. They appreciated having the flexible deadlines and assignment options and being able to work from home" (p.9). These findings are also consistent with other researchers (Bodain & Robert, 2000; Burge & Roberts, 1998; Craverner & Michael, 1998; Driscoll & Leung, 1999; 1998; Robinson, 1999; Saltzberg & Polyson, 1995; Teri, 1999; Thompson & Stringer, 1998; Vogeler, 1996; Wallin, 2001).

Accessibility of the course

Both students and instructors talked about how important the convenience and accessibility of the on-line course delivery method was to them. Students felt that the ability to access their course from home, from work, or even for a few students, from a place in the community that had public Internet access, was a benefit. Students indicated that this accessibility allowed them to complete the course. This finding is similar to findings reported by other researchers. (Burge & Roberts, 1998; Howland & Moore, 2002; Ritchie & Hoffman, 1999). One of the students who responded indicated that he/she was not even in the province, and three students indicated that they were not in the country when they completed the course. Therefore, it was important to be able to access their course and correspond with the instructor and other students on-line without having to come to campus. While three of the students indicated that they had no problems accessing their course while they were away, one student indicated that he/she had trouble accessing the world wide web at times, and was not always able to access the course. Despite this inconvenience, the student was able to complete the course. Two instructors also mentioned that they had to go out of province during the term while the course was in progress. Both instructors were able to access and continue with the course while they were away.

Interaction with others using bulletin board

The design of the courses involved in this study utilized the bulletin board feature as the primary learning tool. In each course students were required to post and respond to

discussions and questions posed on the bulletin board. This ensured that students were interacting on a constant basis with other students and the instructor. Both students and instructors in this study were satisfied with this interaction. Although some students indicated that they did not have much interaction with other students and the instructor, they also indicated that the interaction they had with other students and the instructor was relevant to their learning. One student commented that, "Because of the one-on-one interaction between student and instructor available through this type of course, and also the ability to see other students' ideas at any point of the course, I was able to better understand the material." This is consistent with the findings of other researchers (Bates & Rhue, 1999; Hara & Kling, 2000; Hiltz, 1997; Jiang & Ting, 1998; Shaw & Peiter, 2000; Rogers & Laws, 1997). All six instructors interviewed for this study stated that they believed that their students enjoyed the discussion portion of the course. One instructor mentioned the fact that students were required to lead the discussion while another instructor indicated that getting involved in the discussion was only required when students need advice or to give recognition to students. Bates and Rhue (1999) also found that students generally enjoyed the discussion portion of the course. They also found in their study that students enjoyed the discussion, and enjoyed it even more if they were allowed to lead the discussion. Instructors were generally happy with the discussion taking place among their students on the bulletin board. One instructor said that he had an enormous number of postings on the bulletin board, while another reported over 400 postings in her course. All four students who were interviewed indicated that, for them, the bulletin board discussions were the best part of the web course.

Ability of students to express themselves

An interesting result of the study was the ability of students to express themselves by longer or more frequent postings. This was mentioned by both instructors and students. Three instructors indicated that they believed that this was occurring because the students had more time to think about their responses before they posted them. A number of students confirmed this in their responses. During the interview one student stated "I had a chance to know what I was going to say before I said it."

Two of the instructors also commented that they noticed shy students were participating more on the bulletin board than they would have in class. Both instructors indicated that they noticed this because they had previously had some of the students in another face-to-face course and that students also indicated on their course evaluations that they felt that they could express themselves or participate more in the on-line discussions. This has also been noted by Burge and Roberts (1998), who suggest that students may not be as intimidated by the instructor and other students in the on-line environment.

Ability to learn from others as well as the instructor

Having the ability to learn from other students as well as from the instructor was another benefit which emerged from the data. One student indicated that other students' responses and/or questions to postings on the bulletin board helped him learn more because reading the responses on the bulletin board encouraged him to rethink his thoughts or consider the perspectives of the other students. Two of the instructors

mentioned that they developed a better understanding of the students' approach to the subject matter from questions or comments posted by the students. Studies by Follansbee (1996) and Greenlaw and DeLoach (2003) also discuss the students ability to learn from other students as well as the instructor. Greenlaw and Deloch discuss how students have their own ideas about an issue and post those ideas, but after reading someone else's ideas a discussion follows whereby students involved in the discussion learn from these discussion. Fredericksen, Pickett, Shea, Pelz and Swan (2000) also found, in their study, that students who reported the highest levels of interaction with the instructor and other students reported the highest levels of perceived learning in their course.

Taking responsibility for learning

Both students and instructors also realized that students who take on-line courses have to be self-starters, and they must be able to keep on top of their course and not fall behind. Sixty-three percent of the students who responded to the questionnaire indicated that they found they had to take more responsibility for their own learning. They found that in order to stay current with their course work they had to stay motivated and work on it almost daily. They also commented that at times it was very hard to keep motivated, but if they did not stay motivated they would fall behind. The instructors also noticed that if students did not "show up" in the course for long periods of time that they fell behind and did not do as well as students who "showed up" in the course frequently. This concurs with a study by Hiltz (1997) which suggests that students must be self-starters and independent learners to be successful in an on-line course.

Missing face-to-face contact

Another theme that emerged from the data was students and instructors indicated that they missed the face-to-face contact offered in the traditional classroom. Studies completed by Bodain and Roberts (2000), Driscoll (1998), Burge and Roberts (1998), Howland and Moore (2002), and Valentine (2002) identified that instructors miss the face-to-face contact of the traditional classroom, however, there is no mention of students missing that face-to-face contact in either study. However a study by Dereshiwsky, Moran and Gahungu (2002) found that the majority of students they surveyed indicated that they sometimes missed the face-to-face contact of a traditional class. In an article by Dundon (1999) who interviewed Zella Boulware, a professor from the University of Florida, who teaches on-line courses at that university discusses students' need for face-to-face contact, "there is growing evidence in the surveys that the students enjoy the convenience of taking the course at home but still yarn for the face-to-face contact" (Dundon, 1999, p.1). Both students and instructors, in my study, suggested that they would like to have a several face-to-face meetings throughout the course. This also confers with that of Zella Boulware who because of comments from her students added a face-to-face meeting to all her web courses. Having a face-to-face meeting would possibly be beneficial for those students who could get to the University.

Time spent on course

In this study 40% of the students indicated spending less time on the on-line course, while only 26.7% indicated spending more time on the on-line course than they

would have if they had taken a face-to-face course. This finding is different from that of Chickering and Ehrmann (1996) who suggest that delivering a course on-line requires the student to spend more time on the course. Bates and Rhue (1999), Hara and Kling (2000), Howland and Moore (2002), Hiltz (1997), Nelson (1997), and Rogers and Laws (1997) also found that students had to work harder and spend more time completing on-line courses. The instructors in this study believed that some of the students would spend less time on the course, some would spend about the same amount of time on the course and the majority would spend more time. However, a large number of the students themselves believed they spent less time learning in the web-based course.

Limitations of the Study

The participants for this study were chosen using purposeful sampling. Bogdan and Biklen (1992) describe purposeful sampling as choosing participants for a particular study "because they are believed to facilitate the expansion of the developing theory" (p. 72). The sample for the study was comprised of a small number of students taking on-line courses at UPEI during the fall of 2001 and winter 2002 semesters. At present the enrollment for the web courses at this institution is limited to 25 students per course, therefore, the study was limited due to the small sample size. The final population was 91 students registered in on-line courses with 30 students volunteering to participate in the study. Four students volunteered to be interviewed. The findings should be interpreted with caution. The findings may apply to other courses offered on-line.

Another possibility to consider in the interpretation of the results of the study is that participation by both students and instructors was voluntary. This meant that the participants may have chosen to participate because of strong support for or against on-line course delivery in order to voice their opinions. This may have some effect on the results of the study.

There was a lack of student interest in participating in this study even after they were sent three separate e-mail messages inviting their participation and explaining the importance of the study. Ninety-one students were e-mailed an explanation of the study and an informed consent form. Of the ninety-one students, initially only eleven returned their forms and complete the questionnaire via e-mail. This gave a return rate of only 12.1%. As mentioned earlier one instructor volunteered to give the questionnaire to her students during their final in-class meeting and give them some time to complete it. This gave a return rate of 90.5% for the class. The researcher can only guess at the possible reasons for this, but possible suggestions are: that the questionnaire was e-mailed too close to the end of the term and the students were already finding the time pinch of end of therm and pending exams (Webster, 1995); the students may not have felt comfortable with the technology (i.e. responding to e-mail and e-mail attachments) (Kawasaki & Raven, 1995; Tomsic, Hendel, & Matross, 2000), and students must have some type of motivation to complete the questionnaire (Kawasaki & Raven, 1995). Tomsic et al. (2000) also found that the length and design of the questionnaire may play some role as to whether the students respond or not. They also found that the students they surveyed preferred to complete the survey using pencil and paper. This corresponds with the

results of this study where 19 of 21 students who were administered the questionnaire on paper completed it. It appears from this result that students are more apt to participate in a study if they are informed about this study in a face-to-face class, and sign the consent form and the questionnaire in that venue as well. It would be interesting to inquire from the students who did not participate their reason for not participating. In retrospect this researcher should have asked instructors, who had a final in-class meeting, if the study questionnaires could be administered to the students during this last meeting. The researcher believes that this would have resulted in a very high return rate.

It might also be important to note that another possible limitation of this study might be that the 19 of the 30 students who returned the questionnaire were from the Nursing 303 class while the other eleven questionnaires returned were from the other six courses together causing the results to be weighted in favor of the nursing students' responses.

The researcher would also have liked to have more students participate in the semi-structured qualitative interviews. The students' stories and comments regarding their expectations and experiences were very insightful and it would have been very beneficial to have completed several more of these.

Recommendations[5]

The results of the study indicate that it is apparent that there is a need to continue offering some courses on-line at the University of Prince Edward Island. There is a need for the University, faculty and students to realize the potential and importance of on-line learning to the students of today, and the benefits that it allows these students. It is important that the University determine what kinds of courses would be appropriate and advantageous to offer on-line.

It is also suggested that faculty at UPEI should be encouraged to use some form of on-line education in their course delivery. Faculty should also encourage students to take advantage of the on-line learning experience to develop or enhance their computer or web related skills by integrating some on-line learning into their course delivery and by requiring the student to complete or participate in that portion of the course.

It is important for students who complete their course on-line to let their instructors know what worked best for them and what did not work. This will allow instructors to modify their course to give the best possible learning experience for the majority of students.

From the results of the study students indicated that if they fall behind during the completion of their on-line course that it is very hard to get back on track. It is recommended that when students enroll in an on-line course that they be made aware of

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[5]Recommendations for this study are based on a small sample size, therefore the reader should keep this in mind when considering these implications.

this difficulty and that they make every effort to keep up with their course work.

It is important for instructors to include various types of interaction and multimedia in their on-line course to accommodate all types of learning styles.

Both students and instructors have identified features of on-line courses that they believe enhance the students' on-line learning. These features include the bulletin board, links to subject matter external to the course, and course content. Several students also indicated that they would have liked to see a bit more interactivity added to the course. Having these features at their finger tips would allow both students and instructors to take advantage of them to enhance learning. Instructors should ensure that the discussion topics are both interesting and engaging to keep students participating. Instructors should actively participate in the discussion if it appears there is a need. To take full advantage of the bulletin board feature, students should take part in all discussions by expressing their views on each topic, commenting on other students posts and asking for feedback on their own postings.

Instructors should ensure that all external links are active, kept up to date and provide useful information for the course information. Students should not stop with those links provided by the instructor but explore other sources as well.

Finally, instructors should provide appropriate course content and interactivity that will guide the students through the course, that will encourage them to ask questions, participate in discussions and explore other sources of information, to learn all they can on their subject.

Future Research

This research involved only undergraduate fully on-line courses offered at the University of Prince Edward Island. Further research could explore other questions such as:

- Do students taking on-line courses at universities located in Atlantic Canada have similar expectations and experiences?
- Do graduate and undergraduate students taking on-line courses have similar or different on-line learning requirements?
- How do students use on-line material? Could the material be presented in a more effective manner?
- Do students who are taking face-to-face courses, which also utilize on-line components, take advantage of these on-line components to help them with their learning?
- How can on-courses be designed to offer the best learning experience for students?

The results of studies such as these will help educators understand students' on-line expectations and learning experiences and help them to create quality on-line education for their students.

Conclusion

On-line courses are quickly becoming a prominent feature to today's educational system. On-line courses are being offered through many universities, and as well, there are virtual universities appearing on the Internet that offer full degrees on-line. Even though the instructors who were interviewed agreed that they preferred teaching face-to-face classes, they also agreed that there was a need to offer their course on-line. They also believed that on-line courses will be the way of the future and the university will be left behind if it does not offer courses on-line. This research was completed with the intention of helping instructors at UPEI better understand students' expectations for learning course material on-line, their experiences in an on-line course and what can be changed to help the students have a better on-line learning experience. The research investigated various aspects of the students' on-line learning experience in areas such as responses to on-line course delivery, support services while taking a course on-line, technology based delivery, response to the course itself, and time demands placed on students while taking the course on-line. These results indicate that the students, who participated, believed that they were obtaining equivalent or even better learning opportunities than they would have if they had taken an equivalent face-to-face class. These results were supported by those of Hiltz (1997), Nelson (1997) and Owen et al. (1998).

Because the majority of students at this point who enroll in on-line courses at UPEI are either employed or in the co-op program, being able to complete the course on-

line is very important. One of the students who was interviewed was a mature student taking courses at UPEI because the job she had been doing for the last few years was being reclassified and once reclassified, required the incumbent to have a bachelor's degree. Therefore, in order for this person to keep her job she had to return to school. This student was hoping that more courses would be offered on-line so that she would be able to complete her degree without having to miss work.

The results of the study indicated that the majority of students felt that they learned as much or more from the course than they would have in a face-to-face course. The overall results from the students with regards to expectations and learning experience in an on-line environment were positive and most of the students would like to see more courses offered on-line. The instructors interviewed also believed that most of the students were learning what they expected them to learn. Instructors indicated that student marks were consistent with those of other students taking the same course in a face-to-face environment. This is also consistent with results found by Bee & Usip (1998), Dobrin (1999), Phipps, Merisotis, O'Brien & Harvey (1999), Hiltz (1997), Hoffman (1999), Schuttle (1997), Trinkle (1999), Tryer (1997) and Wideman & Owston (1999). Students also indicated that their expectations for the course were met, that they enjoyed taking the course and that they would definitely take another course on-line if it were a course they needed. Benefits such as flexibility, convenience, (Howland & Moore, 2002; Ritchie & Hoffman, 1996) ability of students to express themselves and ability to learn from others as well as from their instructor (Follansbee, 1996; Greenlaw & DeLoach, 2003) and the fact that the majority of students indicated that they had an

enjoyable learning experience while taking the course on-line are all good reasons for instructors and students to consider on-line courses for at least part of their educational experience.

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Appendix A - Introductory Letter

Dear Student,

I am presently a graduate student at the University of Prince Edward Island enrolled in the Masters of Education Program. As a partial fulfillment for the program I am required to conduct original research and submit a thesis. I have chosen to conduct research that investigates whether students who take a course on-line have their learning expectations met for that course. To accomplish this, I have chosen to contact the students taking on-line courses offered at the University of Prince Edward Island and ask them whether they are willing to participate in my study.

Research conducted at UPEI involving human beings requires a written consent form completed by the participants. This consent form assures the participants respect and that the information given will be kept confidential. If you have any questions about this research you may contact me at

This study is in no way connected to your course mark; whether you choose to participate or not will have no effect on the mark you receive in this course. None of the information gathered will appear on any administration record, and all information will be seen only by myself (Virginia MacSwain). The information collected will be solely for my research purposes.

If you are willing to participate in this research, you will receive a questionnaire by e-mail that will take approximately 15 - 20 minutes to complete. I would ask that you fill in the questionnaire and return it to me via e-mail at Six students will be chosen at random from those who have returned the questionnaire to participate in an in-depth interview. Filling out the questionnaire does not require that you must participate in the interview stage of the research. If you are chosen for an interview and do not wish to participate, you may decline, and another student will be invited to an interview. If you are chosen for an interview and do choose to participate in that interview a time and place convenient to you will be arranged. The interview will take approximately 45-60 minutes, and it will be audio taped to allow for a more accurate transcription of your comments. You may refuse to answer any of the questions asked and may withdraw from the study at any time if you wish to do so without any effect on your course mark.

The questionnaire will be in the form of an e-mail attachment. Upon returning the questionnaire, the header page with your name on it will be removed and destroyed so the returned questionnaires will remain anonymous. When all questionnaires are returned you answers will be combined with the others so there will be no way that you can be identified. For those who are interviewed, the interviews will be transcribed. Your name will not be on the transcription, associated with the study, or on any publication resulting

from the research.

The data will be kept in a locked filing cabinet in Virginia's office which is located in ITEC at UPEI. The office remains locked when she is not present. The data will be kept for at least three years after the study is completed and destroyed after that time.

I invite you to type your name on the attached informed consent form and return it to me by e-mail at Please print a copy of your consent form and keep it for future reference. Anything you write or say for this study will be held in the strictest of confidence.

This research has been approved by the UPEI Research Ethics Board. If you have any questions about the conduct of this research, you may contact the chair of the UPEI Research Ethics Board at

Thank you for your participation.

Sincerely,

Virginia MacSwain

Appendix B - Informed Consent Form (Student)

I, (please print your name) _____, hereby consent to participate in the research project "On-Line Courses: What do Students Really Learn?" The study is being conducted by Virginia MacSwain as partial fulfillment of her Masters in Education Degree at the University of Prince Edward Island. The results of this study will allow educators to develop a better understanding of students learning in an on-line course. There are no known risks to me if I participate in the study. My participation is voluntary, I may withdraw from the research project at any time, and I understand that my participation has no effect on the marks that I will receive in this course. None of the information gathered will appear on any administration record, and all information will be seen only by the researcher involved in the study. The information collected will be solely for Virginia's research purposes.

I understand that the questionnaire I return by e-mail to _____ will remain strictly confidential. If I am invited to an interview, I may decline. If I choose to participate in the interview, the interview will be transcribed. I will be given the chance to review the transcription to check for its accuracy and correct any errors that I may find. When the transcript is returned to Virginia my name will be removed and my answers will be combined with the others so there will be no way that I can be identified.

I understand that my participation in this study is anonymous and my name will not be associated in any way with this research. By signing this form I give the researcher permission to use any of my comments from the questionnaire or to quote me anonymously. I also understand that I may refuse to answer any questions on the questionnaire or in the interview or that I may stop the interview or withdraw from the study at any time. This will in no way effect the mark I receive for this course.

I understand that when my questionnaire is returned my name will be removed and my answers will be combined with the others so there will be no way that I can be identified. The data will be kept in a locked filing cabinet in Virginia's office which is located in ITEC at UPEI. The office remains locked when she is not present. The data will be kept for at least three years after the study is completed and destroyed after that time.

I understand that the results of this study will be shared with Virginia's dissertation committee and other appropriate members of the University of Prince Edward Island, and that it will be published in hard copy and a copy be kept at the University of Prince Edward Island.

I have been given the opportunity to ask any questions regarding this research and these questions have been answered to my satisfaction. This research has been approved by the UPEI Research Ethics Board. If you have any questions about the conduct of this

research, you may contact the chair of the UPEI Research Ethics Board at .

I wish to receive a summary of the study: YES NO

Signature of Participant Date

Signature of Researcher Date

Signature of Thesis Advisor Date

Please print a copy of this completed informed consent form for your own records and e-mail a copy to

Appendix C - Informed Consent Form (Instructor)

I, (please print your name) _____, hereby consent to participate in the research project "On-Line Courses: What do Students Really Learn?" The study is being conducted by Virginia MacSwain as partial fulfillment of her Masters in Education Degree at the University of Prince Edward Island. The results of this study will allow educators to develop a better understanding of students learning in an on-line course. There are no known risks to me if I participate in the study. My participation is voluntary, I may withdraw from the research project at any time. All information will be seen only by the researcher involved in the study. The information collected will be solely for Virginia's research purposes.

I understand that the I shall be interviewed and that interview will be transcribed. I shall be given the chance to review the transcription to check for its accuracy and correct any errors that I may find.

I understand that my participation in this study is anonymous and my name will not be associated in any way with this research. By signing this form I give the researcher permission to use any of my comments from the interview or to quote me anonymously. I also understand that I may refuse to answer any questions in the interview or that I may stop the interview or withdraw from the study at any time.

I understand that the data obtained from the study will be coded and my name will be removed. The data will be kept in a locked filing cabinet in Virginia's office which is located in ITEC at UPEI. The office remains locked when she is not present. The data will be kept for at least three years after the study is completed and destroyed after that time.

I understand that the results of this study will be shared with Virginia's dissertation committee and other appropriate members of the University of Prince Edward Island, and that it will be published in hard copy and a copy be kept at the University of Prince Edward Island.

I have been given the opportunity to ask any questions regarding this research and these questions have been answered to my satisfaction. This research has been approved by the UPEI Research Ethics Board. If you have any questions about the conduct of this research, you may contact the chair of the UPEI Research Ethics Board at

I wish to receive a summary of the study: YES NO

_____

Signature of Participant Date

Signature of Researcher Date

Signature of Thesis Advisor Date

Appendix D - Student Questionnaire (Adapted from Learner Questionnaire, Bates and Rhue (1999))

I. Course Delivery

Please rate all that apply, using the following scale:

1 = Strongly Disagree 2 = Disagree 3 = Neither Agree nor Disagree
4 = Agree 5 - Strongly Agree n/a = Not Applicable

1. a) I like this delivery method because it gives me flexibility in my studies (e.g., time, place location).
   1 2 3 4 5
   Please Explain

b) In this course, I am able to interact (communicate and exchange ideas):
   i) With the instructor as much as I want.
   1 2 3 4 5
   Please Explain

   ii) With other students as much as I want
   1 2 3 4 5
   Please Explain

c) In this course, the interaction
   i) With the instructor is relevant to my learning
   1 2 3 4 5
   Please Explain

   ii) With other students is relevant to my learning
   1 2 3 4 5
   Please Explain

d) If this course was not offered in this delivery method, I would be unable to complete it.
   1 2 3 4 5
   Please Explain

e) I would not take another course using this delivery method
   1 2 3 4 5
   Please Explain

2. I have limited experience with the various technologies
   Yes No

   Please Explain

   If yes, please skip questions 3 and 4.

3. The delivery method(s) I prefer to use are (circle as many as apply):
   a. Face to face
   b. Print-based distance (may include video/audio cassettes)
   c. Print-based distance with CD-ROM, teleconferencing, or video conferencing
   d. On-line, CD-ROM, teleconferencing, or video conferencing as the main delivery method
   e. A mix of technologies

   Please Explain

4. The delivery method(s) I prefer not to use are: (circle as many as apply.):
   a. Face to face
   b. Print-based distance (may include video/audio cassettes)
   c. Print-based distance with CD-ROM, teleconferencing, or video conferencing
   d. On-line, CD-ROM, teleconferencing, or video conferencing as the main delivery method
   e. A mix of technologies

   Please Explain

5. Have you had any problems taking this course in this delivery method (e.g. complications with admissions, inconvenient location, technical troubles, delay in receiving mailed materials)? If yes please be specific about the problem and its impact.

6. What are the most important benefits of this delivery method for you? What drawbacks, if any, are there?

II. Support Services

By "support services" we mean services the institution provides to students to help them complete their education. Support services include but are not limited to technical assistance, library facilities (including extension library resources), counseling services, and computer labs.

7. Support services for this course are unsatisfactory.
   1 2 3 4 5
   Please Explain

8. How can the existing support services be improved? In your response, please include the type of service you are describing.

9. What other support services should be available?

III. Technology-based Delivery

10. a) When I began this course, I was worried about the delivery method.
   1 2 3 4 5
   Please Explain

b) At this point in the course I am comfortable with the delivery method
   1 2 3 4 5
   Please Explain

c) Using technology in this course helps me learn:
   i) with greater depth of understanding
   1 2 3 4 5
   Please Explain

   ii) more relevant information
   1 2 3 4 5
   Please Explain

d) The technology increases my motivation to work on the course.
   1 2 3 4 5
   Please Explain

e) This course requires taking more personal responsibility for completion than does a face-to-face course.
   1 2 3 4 5
   Please Explain

f) I was not provided with enough training in the use of the technology at the start of the course.
   1 2 3 4 5
   Please Explain

g) I come to campus less often because of the technology used in the course.
1 2 3 4 5
Please Explain

h) I can learn better using print materials than by working on a computer.
1 2 3 4 5
Please Explain

11. What changes to the technology, if any, do you think are needed? Please give specific examples.

IV. Response to Course

13. a) The tutor/instructor provides useful feedback.
1 2 3 4 5
Please Explain

b) The feedback I receive is individualized.
1 2 3 4 5
Please Explain

c) I do not receive feedback in a timely manner.
1 2 3 4 5
Please Explain

d) The course objectives are specific and meaningful.
1 2 3 4 5
Please Explain

e) The grading criteria are clear.
1 2 3 4 5
Please Explain

f) The course materials are well organized.
1 2 3 4 5
Please Explain

g) The course materials are relevant to my personal or professional needs.
1 2 3 4 5
Please Explain

h) The course objectives, content, and assessments are consistent.
1 2 3 4 5
Please Explain

i) The marking is fair.
1 2 3 4 5
Please Explain

j) The course content is at about the right level of difficulty.
1 2 3 4 5
Please Explain

14. How do you rate the course materials? (Please circle)
Poor Fair Average Good Excellent

15. When you consider the course and the course materials, what works well? What needs to be improved? Why?

V. Time Demands

16. On average, how many hours per week do you spend on working on this course? (If applicable, include time in class)._____hrs.

17. Is this more or less time than the average amount of time you spend working on courses in a traditional classroom setting?
More Less Same N/A Don't Know

18. Is this more or less time than you expected to spend?
More Less Same N/A Don't Know

19. If you have to travel to take this course, how much time do you spend traveling?
_____hours per week.

20. This course is not worth the time it takes to complete.
1 2 3 4 5
Please Explain

VI. Information about yourself

21. Male Female

22. Year of Birth:_____

23. Please indicate your highest level of education:
Some high school
High school completed
Some post secondary credit
Certificate
Diploma
Bachelor's Degree
Master's Degree
Doctorate Degree

24. How important are the following goals to you?

a) To obtain the qualification or credit.
1 2 3 4 5
Please Explain

b) Interest in the subject/content for its own sake
1 2 3 4 5
Please Explain

c) Contact with distinguished instructors
1 2 3 4 5
Please Explain

d) Content is relevant to the work I do/will do
1 2 3 4 5
Please Explain

e) Socialize with others
1 2 3 4 5
Please Explain

f) Personal growth/broaden perspective
1 2 3 4 5
Please Explain

g) To show myself I can do it
1 2 3 4 5
Please Explain

h) To get high grades
1 2 3 4 5
Please Explain

25. What was your grade point average last term? _____
If you are not sure, please indicate your best guess._____
If you did not take courses last term, please check here._____

26. How many courses are you currently enrolled in?_____courses
How many courses have you taken in the past twelve months, including those in which you are currently enrolled?_____courses

27. What is your student status?
Part-time
Full-time
Co-op
Other. Please specify_____

28. Are you currently employed Yes No

29. If yes, on average, how many hours a week do you work for pay?_____hours per week.

30. Are you a primary care giver in your family? Yes No

31. If you are taking an on-line course, please circle the location(s) where you use a computer for this course. (Please circle all that apply)
Home
Workplace/ Work Office
On-Campus
Community
Other (please specify)_____

32. At home, I can use the following for study purposes. (Please circle all that apply)
Computer _____
E-mail _____
The World Wide Web _____
A VCR _____
An audio cassette player _____

33. There is somewhere in my community where I can go to use the following for study
Computer _____
E-mail _____
The World Wide Web _____
A VCR _____
An audio cassette player _____

Thank You

Appendix E - Interview Questions (Student)

1. Which course were you enrolled in? _____

2. Have you taken other courses at UPEI before? _____

3. When you found out that this course was going to be offered as an on-line course, Why did you decide to enroll in it instead of the regular class held here at UPEI?

4. Describe what your expectations were for the course.

5. Do your feel that your expectations have been met?
   A) if so, how you feel that they were met?
   B) if not, why do you feel that they were not met?

6. Please explain what aspects of the course helped you learn best, (Tools, activities, interaction with others etc).

7. Do you think that you learned the course material presented to you?
   A) if so, please explain why you think so.
   B) if not, why do you feel that you did not learn the material.

8. If you were to take another course on-line, what do you think could be changed to help you learn better?

9. For those who have taken other courses at UPEI - Did you feel that this was a suitable course to be offered on-line - please explain. What other courses do you feel you would benefit from if they were offered on-line?

Thank you for participating

Appendix F - Interview Questions (Instructor)

1. For what reason did you choose to deliver your course on-line?

2. Please explain how you think the on-line version of your course is comparable to the face-to-face version.

3. How have the students responded to the on-line version? (If answer is GOOD) - Please explain.

4. Do the students who have taken the on-line version have the same types of concerns/problems with the course as the regular class? Please explain.

5. After grading assignments and exams by both versions of your class, do you think that the students in the on-line course learned what you intended them to learn. Please explain why you think this.

6. For what reason do you think that offering your course on-line is worthwhile?

7. Do you think that your on-line students spend as much time or more time on your on-line course? Please explain why your think this.

Thank you for your participation.

Appendix G - Seven Principles of Good Practice

Table 8

Seven Principles of Good Practice (Chickering & Gamson, 1987)

Seven Principles of Good Practice	
1.	*Encourages student-faculty contact.* Frequent student-faculty contact in and out of the class is a most important factor in student motivation and involvement. Faculty concern helps students get through rough times and keep on working. Knowing a few faculty members well enhances students' intellectual commitment and encourages them to think about their own values and plans.
2.	*Encourages cooperation among Students.* Learning is enhanced when it is more like a team effort than a solo race. Good learning, like good work, is collaborative and social, not competitive and isolated. Working with others often increases involvement in learning. Sharing one's ideas and responding to others' improves thinking and deepens understanding.
3.	*Encourages active learning.* Learning is not a spectator sport. Students do not learn much just sitting in class listening to teachers, memorizing prepackaged assignments, and spitting out answers. They must talk about what they are learning write reflectively about it, relate it to past experiences, and apply it to their daily lives. They must make what they learn a part of them.
4.	*Gives prompt feedback.* Knowing what you know, and don't know, focuses your learning. In getting started, students need help assessing their existing knowledge and competence. Then, in classes, students need frequent opportunities to perform and receive feedback on their performance. At various points during college, and at the end, students need chances to reflect on what they have learned, what they still need to know, and how they might assess themselves.
5.	*Emphasizes time on task.* Time plus energy equals learning. Learning to use one's time well is critical for students and professionals alike. Allocating realistic amounts of time means effective learning for students and effective teaching for faculty.

6.	*Communicates high expectations.* Expect more and you will get it. High expectations are important for everyone - for the poorly prepared, for those unwilling to exert themselves, and for the bright and well motivated. Expecting students to perform well becomes a self-fulfilling prophecy.
7.	*Respect diverse talents and ways of knowing.* Many roads lead to learning. Different students bring different talents and styles to college. Brilliant students in a seminar might be all thumbs in a lab or studio; students rich in hands-on experience may not do so well with theory. Students need opportunities to show their talents and learn in ways that work for them. Then they can be pushed to learn in new ways that do not come so easily