

**CREATING AN ONLINE UNIVERSITY COURSE:
A FORMATIVE EVALUATION PROCESS**

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Abstract

The purpose of this project was to develop an online version of a course currently offered in face-to-face format at the University of Lethbridge--Information Systems and Management. This is a third-year course in information systems required by Management students in the Information Systems major. Two online modules were developed as prototypes and tested on two classes for a two-week period during the regular semester. The students then filled out a satisfaction survey. The results returned by the 57 students showed that they already had a fair knowledge of computers and did not have many technical problems while using the online modules. Regarding the online content, many students did not use the supplementary links provided, and many did not appreciate the similarity of content between the textbook and the online modules. Taking into account the feedback given by the students, the rest of the modules for the online course were then developed. A survey form to evaluate the online course was also developed, similar to the one used for the online modules. Developing an online course was a tremendous amount of work but a very rewarding experience. The experiences the researcher underwent in creating this online course will be useful to others contemplating or going through the process of creating their own online courses.

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Introduction

Statement of Purpose

The purpose of this project was to develop an online version of an information technology course at the University of Lethbridge. The activities that led up to development of the online course began with researching the field of online/distance education, and continued with developing prototype modules, testing them on two classes, surveying the students, and analyzing the survey results. The course chosen was Management 3061, Information Systems and Management, a third-year course in information technology required by Management students in the Information Systems (IS) major. Two online modules were developed and tested on two classes for a two-week period during the regular semester. The students then filled out a satisfaction survey. Taking into account the feedback given by the students, the rest of the modules for the online course were then developed. The experiences the researcher had in creating the online course will be useful to others who are creating or are contemplating creating their own online courses.

Background and Justification

Currently there are no totally online courses in the Faculty of Management, although many instructors have online components in their classes. The Faculty sees a need for online course development and supports this initiative. One of the objectives as articulated in the Faculty of Management Road Map 2005 is a strong focus on teaching, and one of the sub-objectives is to "support and develop innovative delivery methods" (Faculty of Management, 2001, p. 31).

The subject area covered in Management 3061 is ideal to be offered online. It covers the theory and concepts of information systems and their application to managers. A course in information technology fits naturally into an online environment because all the subject material is found on the Internet. "If your curriculum deals with the Internet as a subject then it is the obvious, and most authentic, medium for your instruction" (McManus, 1995, para. 5). However, the field of information technology is changing so rapidly that one of the challenges is keeping up with the changes. Links become outdated within the space of weeks as content on the web is rearranged or deleted. New developments in the information technology field mean that the course content must be updated each time the course is offered.

The Faculty of Management operates successful campuses in Calgary and Edmonton. With over 900 students between these two campuses, the Faculty of Management has a significant proportion of its students away from the home campus in Lethbridge. Large portions of the Calgary and Edmonton students work full-time and take classes part-time: 45.6%, compared with 10.8% of Lethbridge students (2001-02 Facts Book). An online course would provide these students with some flexibility in scheduling. Further, the Calgary and Edmonton Campuses offer a subset of the Lethbridge Campus courses; an online course would add some variety and flexibility to their timetables which would in turn benefit the students.

Classroom facilities on the northern campuses are utilized to the maximum, so one or more online courses which do not require a classroom would take the pressure off strained classroom facilities. Classes with traditionally low enrolments would have a better chance of filling up if they were drawing students from more than one campus.

There would also be the opportunity at some time in the future to bring the three campuses closer together. Calgary and Edmonton students could interact with Lethbridge instructors, Lethbridge students could interact with Calgary and Edmonton instructors, and students from all three campuses could interact with each other.

Looking beyond Alberta, there is the possibility of attracting students from around the world, who would increase the diversity of and give cultural and social benefits to the class (Leask, 2000). High-profile scholars and business people from other countries could be invited to contribute to the class.

An online course would be attractive to students on the Lethbridge Campus as well as the northern campuses. Students who work part-time to finance their education would appreciate the flexibility of an online course. Students with family commitments could work from the comfort of their own homes. The benefits of online education, as well as the drawbacks, are discussed in more detail in the Literature Review.

Pedagogy

An online class affords students the opportunity to experience an alternate pedagogic paradigm and the opportunity for independent learning at their own pace.

The education that students experience at university is only a part, although an important part, of the total education they will experience in their lifetimes. University education is a particular kind of educational experience--it is mostly *second hand* learning, as opposed to *first hand* learning. For example, learning about the insides of a computer by taking it apart and rebuilding it, is first hand learning, while reading about

the parts of the computer and how they fit together, is second hand learning. An online course should foster first-hand learning as much as possible.

The university's style of education is not always a good fit for certain students, perhaps because their preferred learning style is not the way we teach, or because of personal circumstances in their lives that make learning at university difficult. Other students excel at university and are capable of learning more than the basic course content. It is important to give *all* students something that they can walk away with. This is accomplished by offering a flexible course with a basic level of content to be mastered as well as supplementary material for those who are capable of going beyond the basics. The preferred approach to evaluating student work incorporates flexibility; there are no right or wrong answers to complex problems such as analyzing business cases or explaining personal ethics. There are often several answers to what seem to be straightforward questions. Depth of learning is shown by students' insights and reflections.

In an online introductory information technology course, students research course concepts over the Internet and a good portion of the course content is about the Internet. The textbook and course content serve to focus students' studies, but the Internet is an extremely rich learning resource which should be exploited. Students should be encouraged to explore and find information that is pertinent to the course, to their interests, and to their stage of learning. Each student should have a unique learning experience.

In an online course, students are expected to take responsibility for their own learning. The instructor acts as facilitator, guide, and encourager. There is the danger of

students not finishing or not being motivated to work regularly on the course content, so it is important to embed into an online course features that encourage engagement.

Operational Definitions

Before going further, it is useful to understand what is meant by the concept of online education. Online education is one form of distance education, although distance education is taken more and more to mean online education (Farrell, 2000). Distance education has been described as "the transmission of educational or instructional programming to geographically dispersed individuals or groups" (U.S. Congress as cited in Aniebonam, 2000, para. 8); or "instructional delivery that does not constrain the student to be physically present in the same location as the instructor" (Steiner, 1995, para. 1); or "instruction can be moved to the people, rather than moving the people to the instruction" (Telg & Irani, 2000, para 6). The defining elements of distance education are: 1) the separation of instructor and student; 2) the use of educational media to connect instructor and student; 3) some kind of two-way communication between them; 4) separation of instructor and student in space and/or time; and 5) control of the learning experience resting with the student rather than the instructor (California Distance Learning Project, n.d.). This is in comparison to traditional face-to-face education, where the students and the instructor meet together at a scheduled time at a set location; most often learn the material at the same pace, together; use a physical textbook for reference; and usually complete assignments outside of class time.

There are several models of distance education which acquire their distinctiveness from the amount of face-to-face contact with others in the class, the flexibility of

scheduling, and the pace of learning. According to the Institute for Distance Education (1997), there are three main models of distance education: 1) the independent learning model, where there is no physical contact with others in the class, no deadlines, and students learn at their own pace; 2) the distributed classroom model, where distant students are included in a face-to-face class via telecommunication technologies; and 3) the *open learning plus class* model, where students study on their own, using course materials sent to them (e.g., videotapes, computer disks), with some class meetings.

In online education, as with distance education, there are various models which differ in the ratio of Internet to classroom delivery used, or in the amount of interaction. In one model, at one end of the continuum are web-presence courses which have a small portion of the course online and the main portion in the classroom; at the other end are web-based courses, where the entire course is delivered on the Internet (Bataineh, 2001). Roberts, Jones, and Romm (2000) present four models of online teaching which arise from efforts in Australia to offer *flexible delivery* of online education. The models show the evolution of online course delivery, from the naive model where course materials are simply posted on the Internet and there is no communication between the instructor and students, through intermediate stages (the standard model and the evolutionary model), to the final stage, the radical model, where there is a great deal of interaction among the students and they learn from one another rather than from the instructor. The instructor steps back and becomes the facilitator.

The term "distributive learning" is often used interchangeably with distance education. Distance education has to do with the separation of instructor and learner, while distributive learning focuses on the teaching learning act, which is decentralized

(Chapman, 1993), and responsibility for learning is distributed among all students as well as the instructor (Bass, 1998).

Another related term that one sees everywhere today is e-learning. E-learning has been defined as “the use of information and communications technologies (ICTs) to deliver content (learning, knowledge and skills) on a one-way or two-way basis” (Murray, 2001, p. 3). Another definition-in-progress from the Open and Distance Learning Council is “the effective learning process created by combining digitally delivered content with (learning) support and services” (Waller & Wilson, 2001, para. 1). The emphasis in e-learning is on the delivery method which involves some sort of technology.

In summary, all these terms are related but have slightly different meanings, depending on the angle they approach the subject from. Distance education is the historical term that has been around the longest. Online education has entered the picture with the advent of education over the Internet. Distributive learning and flexible learning are different flavors of online education, while e-learning is the newest but most general term of all.

Literature Review

Distance and online education are timely issues. A survey of 300 post-secondary institutions in the United States showed that just over half were involved in distance learning, and 61% had been involved for less than five years (Aniebonam, 2000). In Canada, there is a similar movement among post-secondary institutions toward online education. In 1998, according to the TeleCampus online directory, Canada offered approximately 1,300 fully online courses, which was 19% of the world total of approximately 6,500 fully online courses (Lewis et al, 1998). Recently, thirteen universities formed a partnership and the result is the Canadian Virtual University. Their website claims to offer over 250 programs with 2,000 courses to choose from, using the Internet or distance learning (Canadian Virtual University, 2001).

There are many advantages of offering online courses. Distance learning addresses problems of availability and flexibility of time, place, and pace of learning (Beller & Or, 1998). With fully online courses, there is no need for a physical classroom. This is a good solution where there is a scarcity of physical classroom resources. There are also ecological and economic spin-offs, for there is less travel to and from class.

Online courses improve accessibility for students (Abrioux, 2001; Bartlett, 1999) because they can accommodate a wide range of geographically dispersed and non-traditional students. Abrioux (2001) reports that seven post-secondary institutions involved heavily in online learning (in Norway, Australia, Canada, India, and the United States), began e-learning in order to improve accessibility and learning outcomes for students.

The other side of the accessibility issue is that online courses exclude some students. Online education has the unintended consequence of amplifying the effects of the digital divide. Not all potential students have equal access to the technology that makes it possible to take an online course (Sweet, 2000). Students without the technical knowledge of computers are also left out in the cold. Students have different levels of expertise with computers and software, and many students experience frustration because they have to learn how to use the medium as well as learn the course content, and their frustrations are amplified if there are technical difficulties (Farrell, 2000).

An emerging issue in distance education is accessibility by those with disabilities. Some students with disabilities are at a disadvantage or even unable to participate in online learning (Kiser, 2001). In the United States, the Workforce Reinvestment Act was passed in 1998, and it has been enforceable since June 2001. It requires all federal government websites and electronic and information technology to be accessible to people with disabilities (Kiser, 2001). Although there is no parallel Canadian legislation, the implication is that Canadian distance education providers should be concerned with making online content accessible.

In education, there has been a trend toward the teacher as facilitator and guide and away from the teacher as lecturer (Beller & Or, 1998; Dangel, 1998). The shifts have been from teacher as transmitter to teacher as facilitator, from teacher-directed to student-directed classes, and from content-based to process-based instruction (Dangel, 1998). Online education plays to these trends. Although it is possible to merely transpose lecture notes onto the web, it is not conducive to learning. Therefore, most instructors of online

classes do not lecture. Instead they serve as a resource for their students. Students are in charge of their own learning and the instructors no longer direct.

What makes online education distinct is the Internet itself, being "the largest and most diverse information resource in the world today" (McManus, 1995, para. 4). It is both the method of delivery and a research tool. As a research tool, the Internet is able to provide multiple interconnections among knowledge domains. Students benefit from learning information search and management skills, while perfecting their skill at using the computer (Farrell, 2000).

The Internet is the rich learning environment described by constructivists (Koyanagi, 1997) and "could easily be considered the ultimate constructivist learning environment" (McManus, 1995, para. 12). Constructivism is a philosophy of learning which believes that knowledge is constructed rather than transmitted, and teaching is "a process of helping learners to construct their own meaning from the experiences they have by providing those experiences and guiding the meaning-making process" (Jonassen, Peck, & Wilson, 1999). Constructivism relies on opportunities for students to play a part in their own learning and to engage in social exchange (Sweet, 2000). Online courses offer an independent learning experience, where the learner actively works through the course and makes choices. Working individually encourages independent learning (Fallah & Ubell, 2000) and increases responsibility. Learning is authentic with real-life examples possible, depending on the subject area. Online courses offer the opportunity for interaction with others, for the purpose of sharing meaning.

Online courses can deliver a high level of interaction and interaction is central to the educational process (Miller & Webster, 1997). An online course can be designed as

an interactive experience, and social exchange can take place over e-mail and in discussion groups. Some might argue that an online course provides very little interaction compared with a face-to-face course where the instructor and students communicate in real time and have a rich sensory experience, with two-way visual, verbal, and body language communication occurring. However, even though face-to-face classes have the potential for a high level of interaction, in real life there is a wide range of interaction levels. For example, a class discussion demonstrates rich interaction, while a lecture shows one-way communication with little interaction. Similarly, online classes can provide varying levels of interaction, all the way from one-way communication with little interaction (posting lecture notes onto the web) to rich interaction (small group online synchronous discussion and sharing of files).

Interaction in an online course can be measured by the course software, through the total number of messages, number of messages per week, length of messages, and function of messages sent by students (Tolmie & Boyle, 1999). However, Tolmie and Boyd (1999) warn of the pitfalls of tying effectiveness of a course to specific functions that can be measured electronically. For example, they found that there was some course-related activity occurring offline which could not be measured electronically.

Oliver (1999) gives examples of the online environment changing the students' role in the learning process; the Internet can deliver increased access to information resources, active learning opportunities (collaboration and shared learning), authentic activities (problem-based, case-based, and work-based learning) and the opportunity to improve generic skills (information literacy, task management, teamwork, and self-sufficiency). Bates and Bartolic-Zlomislic (1999) report that students' writing skills

increased significantly as they worked through an online course, and that the anonymity of discussion groups encouraged more student participation. According to Feenberg (1999), online discussions inspire high quality discussions, even better than in face-to-face classes. This could be because participants have time to think before replying and normally shy students may feel more inclined to join in because they feel more anonymous.

In an online course designed with flexibility in mind, a wide range of learning speeds can be accommodated. Students can complete work quickly or slowly, depending on their abilities and preferences.

In online education, the instructor's time is freed up for the time there would be a lecture in a face-to-face class (Wade & Power, 1998). This time could be used to foster smaller group learning (Sandercock & Shaw, 1999). In a study by Almeda and Rose (2000), instructors reported changing their teaching approach for online classes. They spent more time with online teaching and saw a need to provide plenty of motivation and written feedback for students. They liked the online format because they could access the course from anywhere.

There is a perception that online courses can bring in large numbers of students and therefore, dollars, to universities (Farrell, 2000), but a purely monetary motivation risks reducing the quality of education. It actually costs more to deliver good quality online education than it does to offer traditional face-to-face education (Lerman, as quoted in MIT rejects, 2001). Some researchers report that online courses are not as scalable as traditional modes of distance education (print-based and telephone-supported) (Bates & Bartolic-Zlomislic, 1999), especially when students expect increased interaction

with academic staff (Abrioux, 2001). That is, there is an increased load on the instructor in large sections of online courses. The cost of developing the first online course is high, although the cost of the subsequent courses is lower (Bates & Bartolic-Zlomislic, 1999; Sweet, 2000). Collaboration with other institutions, both Canadian and international, can help to keep costs down (Bates & Bartolic-Zlomislic, 1999), as can partnerships with hardware manufacturers (Sweet, 2000).

Online courses require expensive technical infrastructure (Farrell, 2000); although the infrastructure is already in place at most universities, a lack of bandwidth constrains the design of an online course, for it determines whether the course can use audio and video conferencing, or only be capable of text and small images (Farrell, 2000; Wade & Power, 1998). The university can provide sufficient bandwidth at its end but the users connecting from home may have slower modem connections and this limits the course to text and small images.

Students in online courses are isolated from the culture of the college or university and have less access to support structures (Farrell, 2000; Leask, 2000). It is a challenge to provide geographically dispersed students with access to libraries, counselors, tutors, help desks, and other services that are offered at a physical university. The dropout rate in asynchronous-based courses is higher than in traditionally delivered courses (Hiltz, 1997).

Post-secondary faculty are concerned about increased training requirements, job security, increased workload, the changing nature of higher education, and the threat to institutional autonomy (Farrell, 2000). They are disturbed about the commodification of online education (Sweet, 2000). The ownership of online courses is a complicated issue

which has not been resolved (Farrell, 2000; Kompf, 2001). Copyright laws do not adequately cover online educational environments. Do the courses belong to the university, the teacher, or the designer? This document will not explore these complex topics but raises them as issues worthy of further study.

Faculty members are concerned about academic honesty; it is impossible to know if the students are actually doing the work themselves. However, there are some strategies for minimizing the probability of academic dishonesty, such as having proctored exams or automated, timed exams, using question banks, and using multiple opportunities for assessing students' work rather than relying on exams (McNett, 2002).

Student satisfaction with online learning is affected by such factors as type of computer access, time available for course work, level of computer skill, hardware issues, amount of personal contact, and most important, level of control over learning (Peters, 2001). In a 1998 study, Wade and Power asked students to evaluate an online course. While students found online learning to be interesting and challenging, they felt that monitoring how often and how long they spent on each module was invasive and could take away from the experience. Evaluation of an online course should focus on the technology only as it relates to educational outcomes (Leask, 2000).

The foregoing has been an overview of the issues found in the literature about distance education. The issues involved are complex, sometimes controversial, and often groundbreaking. Some of the topics covered have been online interaction, constructivism, costs, copyright, and accessibility. The literature review served as a springboard from which to begin the process of online course development, a description of which follows in the next section.

Methodology

The action research method was used for this project. The question or problem which drove the project arose from an opportunity and a desire to explore the online delivery method. The project exemplifies the practical nature of action research which focuses on action, disciplined thinking, and a recursive nature. The four phases of action research (planning, acting, observing, and reflecting) were followed, and these phases led, and will lead, to further iterations of the action research cycle, as shown in Figure 1.

Scope and Limitations of the Project

The project was started in January 2002 and continued until December 2002. The scope of the project included researching the field of online/distance education, developing the test modules, testing them on two classes, surveying the students, analyzing the survey results, and creating the online course. After the project finishes, it is planned to offer the online course. (See Figure 1 for a list of project activities.)

One should be cautious when generalizing the author's experiences. However, the results of this project will be most pertinent to post-secondary educators in western Canada, especially in the information technology area. University educators who are considering online education can profit from reading about the process and pitfalls of developing an online course. The results of the survey of the test modules will be useful to educators in the information technology area, since the students surveyed are likely to match the profile of students in information technology.

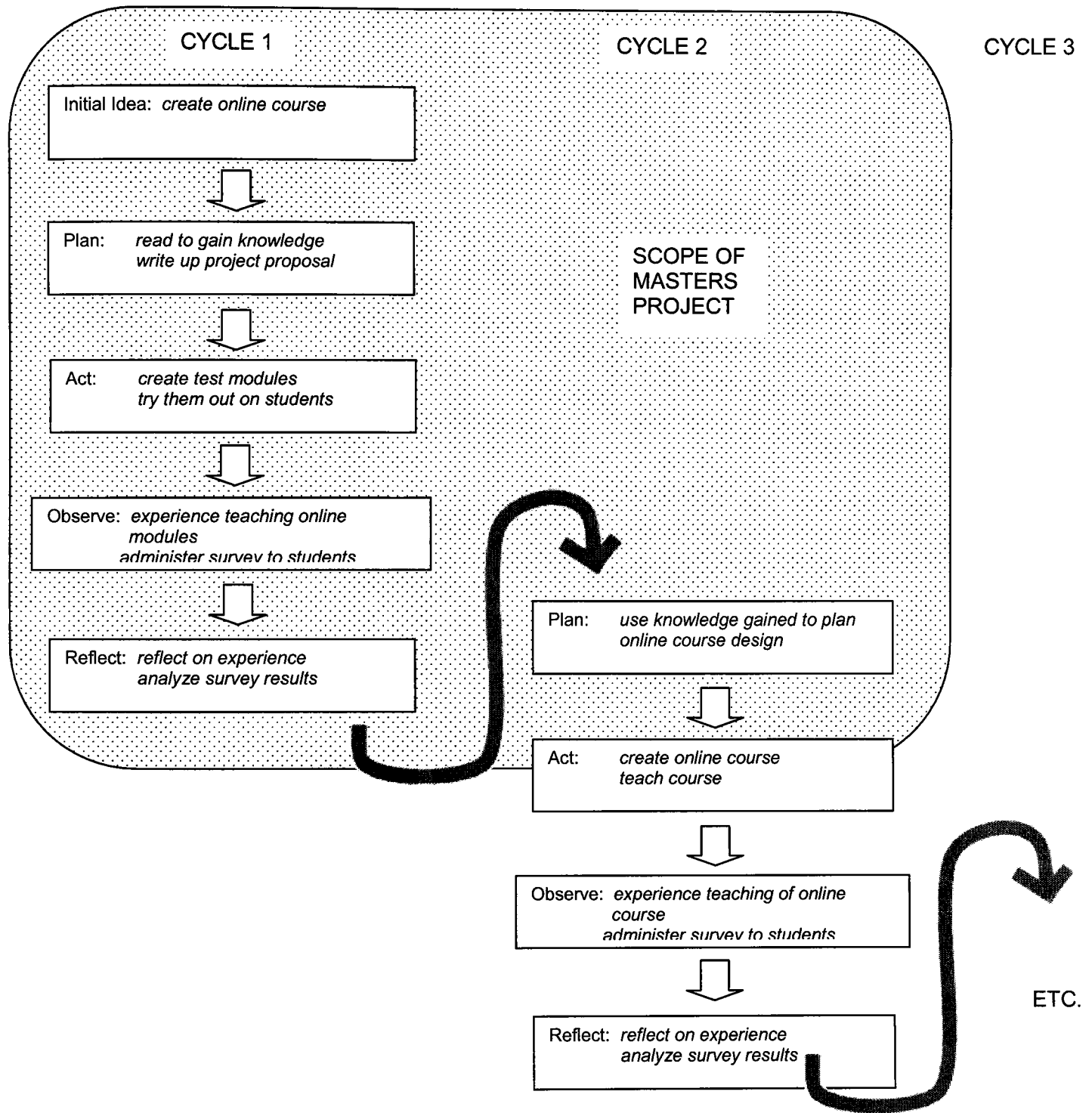


Figure 1
Project Activities Showing the Recursive Nature of Action Research
(Adapted from Kemmis & McTaggart, 1988, p. 11)

Evaluating the Test Modules

As part of the process of developing an online version of Management 3061 (Information Systems and Management), two online modules/chapters were created and tested in Spring 2002. During that semester, the course was taught in face-to-face format by two instructors in the Faculty of Management. Both were interested and willing to test the two online modules on their classes. Subsequently online modules to accompany Chapters 11 and 12 of the textbook (O'Brien, 2001) were developed for use in WebCT, an online course management tool. Students in both sections of Management 3061 used the online modules during two weeks in March. There were no face-to-face classes during the two weeks, although both instructors were available for questions.

Software.

The software used was WebCT, which is an online course management tool supported by the University. The University's Curriculum Re-Development Centre (CRDC) provides excellent support to instructors who use WebCT, in terms of workshops, technical assistance, and troubleshooting. Students use a web browser such as Internet Explorer or Netscape to access the online content. WebCT is cost-effective, easy to use, and customizable. Instructors can choose which functions and tools to add to their courses: communication tools (chat, discussion, whiteboard, and e-mail), calendar, tests and quizzes, course outline, course content, glossary, student evaluation tools, and student homepages. Moreover, there are utilities just for the instructor for grading, file management, course management, test creation, and monitoring course activity.

The course content was created as html pages in Microsoft FrontPage and uploaded to WebCT. Microsoft FrontPage was chosen because it is simple to use and is capable of creating single html pages. All of the other web page creation software programs that were investigated were only capable of creating groups of linked web pages. Single web pages were needed because WebCT provides the navigation tools, once the single files are uploaded. In addition, FrontPage offers basic features such as images, links to text and images, image maps, various formatting features (fonts, bold, underline, etc.), and tables.

Procedure and Design

As the creator and instructor of the online modules, the researcher visited each of the Management 3061 classes beforehand to prepare them for the online experience. Students were given an information sheet about the online modules (see Appendix D) and instructions for logging in to WebCT. Only a few students had never used WebCT before. Students were told that the instructor of the online modules would be available for questions by e-mail, telephone, and office visits. In addition, there were *virtual office hours* on six different days, for one or two hours, where students could log on to the chat area and ask any questions they had.

Students were given one week to complete each module. They were asked to read the chapters in the textbook as usual, go through the online course content and activities, and complete an assignment for each of the two modules. Each assignment was to be completed by posting at least two messages in the discussion area of WebCT: the first message to answer the question, and the second to reply to another student's posting. The

first assignment, a question from the textbook, posed an ethical dilemma. The second assignment involved a case about a hospital's decision to implement an information system. Students had already been formed into groups of four or five by the instructors of the face-to-face classes. The students (virtually) discussed the case questions within their groups. For this purpose, separate topics in WebCT's discussion area were created for each section of the course, and within each topic, separate threads for each group; for example, the five members of the group called "Third Time Lucky" posted all their messages under the thread entitled "Third Time Lucky". This was a way to keep the workload manageable for the students--rather than having each student read all of the messages posted by the whole class, each student was only required to read and reply to the messages posted by his or her own group.

When they were finished the online modules, the students filled out a satisfaction survey, which is attached as Appendix A. The survey results were analyzed using descriptive statistics and qualitative methods. The lessons learned were applied to the design of the course.

After the first completely online offering of the course, the students will fill out a similar satisfaction survey (Appendix C). Administering this survey is outside the scope of the project, as the first offering of the course will occur after the project has finished.

Limitations of the Surveys

The statistical results of the test modules survey are specific to the two particular classes that participated, and are not generalizable to other classes at this University or other post-secondary institutions. This is because of the short length of time students

spent on the test modules, and the fact that the modules were a small part of the course. However, the students' comments about their online experiences are likely to be typical of students in online courses.

There might have been a bias in the survey results because participation was voluntary. However, the response rate was high enough (92%) to mitigate that effect. A random sample would not have been feasible because of the small size of the sampling frame.

The fact that students knew they were involved in a test may have caused them to rate the modules higher than if they were a normal part of the course. There is no way to alleviate this; the students were aware of the nature of the test, as they were required to give their informed consent to participate in the survey.

There is a possibility of contamination of the results. The researcher was in contact with both groups of students to be surveyed, and before they did the test modules, the researcher told them about the advantages of doing course work online. The researcher believes strongly that online education is both viable and desirable, and this belief may have influenced the project, for example, through focusing only on positive results and downplaying negative results. The researcher was the instructor of the test modules and it is difficult to set aside personal interest in the success of the undertaking in favor of being impartial. However, being aware of the potential for bias is the first step in eliminating, or at least minimizing it.

The Survey Instrument

The test modules were evaluated by means of a survey, attached as Appendix A, which was filled out by the students after they completed the test modules. Appropriate

permission to administer the survey was obtained from the instructors of the classes and the students were informed that their participation was voluntary and that their privacy and confidentiality would be maintained. In addition, Human Subject Research approval was obtained from the Faculty of Education (see Appendix B).

The broad objective of the survey was to find out what the students thought of the online modules and to solicit students' suggestions for improvement. The results were meant to be useful mainly to the course designer and were used to improve the online course. The survey was administered in class by the researcher to all students in the two classes who volunteered. The survey was pre-field tested by two individuals who worked through the survey questions, asking their own questions and giving their impressions aloud. This process was valuable because it pointed out several problems with wording and confirmed that most of the survey questions were clear and unambiguous.

The survey consisted of 25 multiple choice and open-ended questions in five sections: a) Background Information, b) Usefulness of Materials, c) Time Spent, d) Technical Issues, and e) Rating of Online Modules. A five-point Likert scale was used for most questions. On the survey form, there was space after each question to give written comments as well as a separate question which asked for suggestions. Students were encouraged to give additional comments, and most did. The comments and suggestions gave an insight into why they replied as they did on the questions with the Likert scales. The written comments are attached as Appendix E.

The answers to the multiple-choice questions were analyzed to extract descriptive statistics. The answers to the open-ended questions were typed, grouped into like categories, and the results summarized and analyzed.

Survey Results

Background information. In Management 3061 A (the day section), 37 out of 42 students filled in the survey (88% response rate); in Management 3061 N (the night section), 20 out of 20 students filled in the survey. The overall response rate was 92%.

The students who filled in the survey ranged in age from 18 to 33, with a mean age of 23. There was an approximately even split between males and females (28 males, 29 females). Most of the students were Accounting majors (31), followed by General Management (11), Management Information Systems (9), and other majors (6).

More students used a home computer (36) rather than a University computer (19) to access the online modules. Only 10 students had taken an online course before; the other 47 had never taken an online course. Most characterized themselves as having a reasonable knowledge of computers (36) or very knowledgeable about computers (14). Figure 2 shows the students' self-reported years of experience with computers. None of the students reported less than three years of experience, so this group had a fair amount of experience with computers.

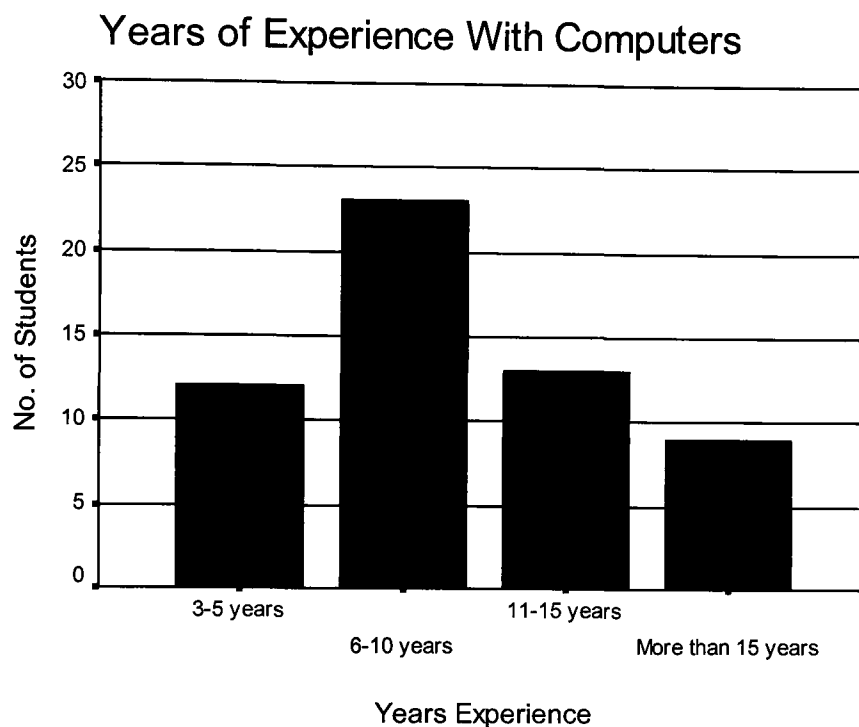


Figure 2
Years of Experience with Computers

Based on the written comments, students generally liked the modules and appreciated the advantages of the online format. They felt the modules were easy to use, enjoyable, effective, and different. They commented on the usefulness of the online modules, the well-organized online content, and the links which gave real world examples. The online format allowed them to work at their own pace and they valued the increased flexibility of their own scheduling. The discussion area allowed "a lot of people to share and present different opinions" and students found it good to see everyone's point of view. At the same time, they recognized that there were areas that could be improved.

Usefulness of materials. The students were asked how useful they found the course textbook, the online content, the links to supplementary resources, the online

discussion for Chapter 11, and the online discussion for Chapter 12. They were also asked about the overall usefulness of the online modules. As depicted in Table 1, students found the online course content the most useful and the supplementary links the least useful. The mean scores did not include blank responses or responses of "did not use".

Table 1

Usefulness of Online Module Components

| Course Component | Mean Usefulness Score¹ |
|-------------------------|--|
| Online course content | 3.78 |
| Course textbook | 3.71 |
| Discussion Chapter 12 | 3.61 |
| Discussion Chapter 11 | 3.55 |
| Overall usefulness | 3.53 |
| Supplementary links | 3.23 |

¹1="not useful at all" and 5="very useful"

In the questions about usefulness, students had the choice of a sixth option: "did not use". The least-used course component was the supplementary links, with 15 out of 55 (27%) not using the links. (See Table 2.) While it is encouraging that the other 73% of the students must have used the links, it still is a concern that so many did not use them. The written comments reflected the same theme. Students did not use all the links that were provided and some felt there were too many links (28 links for Chapter 11 and 31 for Chapter 12). The high numbers not using the links may have been because it was not a requirement to use the links and the students were busy with other course work.

Surprisingly, one student "didn't use" the Chapter 11 discussion and three "didn't use" the Chapter 12 discussion; in other words, they did not do the assignment. In checking the assignment grades, one student did not complete the Chapter 11 assignment,

and two students did not complete the Chapter 12 assignment. It is not known why they did not complete the assignment. Eight students did not use the course textbook, but it is not possible to tell if these students would have used the textbook for the face-to-face class.

Table 2
Number of Students Not Using Online Module Components

| Course Component | No. Choosing "Did Not Use" |
|-----------------------|----------------------------|
| Supplementary links | 15 |
| Course textbook | 8 |
| Online course content | 5 |
| Discussion Chapter 12 | 3 |
| Online Module Overall | 2 |
| Discussion Chapter 11 | 1 |

Time spent. The students were asked how many hours they spent online and offline working on the modules. They spent an average of 2.32 hours per week *online* working on the modules, with the majority (45) spending from 1-3 hours online. They spent an average of 1.44 hours *offline* per week working on the modules, with the majority (46) spending from 0-2 hours offline. There was a positive correlation between the number of hours spent online and the overall rating of the online modules (statistically significant to the .05 level). This could be because the online course environment was new to most students, and it takes some time to get used to something new. The more time they spent with the online materials, the more familiar they became with them, and the higher they rated them.

Technical issues. Students were asked if they encountered technical difficulties while they were working on the online modules, and if they did, what they were and whether they were able to resolve them. The written comments that students provided gave ample feedback about the types of technical difficulties that students had:

1. difficulties with posting to the discussion area (5 comments);
2. difficulties using WebCT (5 comments);
3. Windows XP incompatibility (3 comments); and
4. difficulties with audio links (2 comments).

Originally, the expectation was that students having technical difficulties would not rate the online modules very highly, would feel the modules were difficult, and would spend more time to complete them. However, there was no statistically significant correlation between the presence/absence of technical difficulties and perceived usefulness of materials, overall rating, overall satisfaction, difficulty level, or amount of work. Just 11 of the 57 students (19%) had technical difficulties, and only three of the 11 (5%) were unable to resolve them. These small numbers speak to the robustness and user-friendliness of the WebCT software and the higher level of computer knowledge of this group of students.

Two of the three technical difficulties that could not be resolved had to do with WebCT, and the third had to do with the University computer labs. One student remarked on the incompatibility of WebCT with Windows XP, but did not say exactly what the difficulties were. There were other comments about the incompatibility, although the other students did not feel this problem was irresolvable. At the time the modules were tested, there was a warning on the University's WebCT home page about the

incompatibility. The University has since upgraded to a newer version of WebCT that is compatible with Windows XP. The second student with irresolvable technical problems spent more than half an hour composing a message to be posted to the discussion area, only to have the message disappear upon clicking the "Submit" button. This student did not know that WebCT times out after 30 minutes of no activity. The third student commented that there were no speakers in the University's computer labs, making it impossible to use the audio links. Students were reminded in an e-mail to bring headphones if they planned to access the course at the University; despite the reminder, this student was still frustrated. Just over one third of students worked on the modules primarily in the labs.

The difficulty with WebCT's discussion area was borne out by the experiences of the instructor of the online modules. Of the seven students who sent e-mails during the two weeks, five of them were problems with posting messages. Because most of them had used WebCT in other classes, it was incorrectly assumed that they knew how to use the discussion area. Students suggested there should be a session on how to use WebCT.

Rating of online modules. In the final section of the survey, students were asked about the difficulty level, amount of work, their satisfaction with online interaction, and their satisfaction and rating of the online modules. The last question asked for suggestions to improve the online modules.

In general, the students felt the modules were the same level of difficulty or less difficult than the face-to-face class. They felt the modules were the same amount of work or more work than the face-to-face class. They were satisfied with the online interaction with the instructor and their fellow classmates. Overall, they were satisfied with the

online modules and rated them positively. Overall satisfaction with the online modules was positively correlated with satisfaction with online interaction with the instructor and fellow classmates (all statistically significant at the .01 level). Table 3 shows the means of each of the questions in this section.

Table 3
Means of Rating Section

| Question | Mean Score |
|---|------------|
| Satisfaction with interaction with classmates (1=not satisfied at all; 5=very satisfied) | 3.60 |
| Satisfaction with interaction with instructor (1=not satisfied at all; 5=very satisfied) | 3.56 |
| Overall rating of modules (1=poor; 5=excellent) | 3.49 |
| Satisfaction overall with modules (1=not satisfied at all; 5=very satisfied) | 3.36 |
| Amount of work (1=much less work; 5=much more work) | 3.16 |
| Difficulty level (1=much less difficult; 5=much more difficult) | 2.67 |

Online interaction. In the area of online interaction, student comments were equally split into those who liked the online interaction and those who did not. This format was new to most of them and they did not have a choice whether to participate. However, it is clear they considered interaction an important issue, since there were more than 20 comments about online interaction. Their overall satisfaction with the online modules was linked to their satisfaction with online interaction with the instructor and their fellow classmates. Students suggested adding more interactive activities such as videos, more audio, "fun fact tidbits", and quizzes. Adding different activities would

provide different media so students would not always be reading text on a computer screen. On the other hand, it is time-consuming to create these items, and often the increased bandwidth requirement prevents students with slower access from using them.

Only two students visited during the approximately eight hours of virtual office hours in the chat area. This could have been because students were unfamiliar with the chat feature, or because they found it easier to send an e-mail right when they had a question, rather than waiting for virtual office hours. Interestingly, one group of students voluntarily used one of the chat rooms to talk about their project for the face-to-face course. The chat rooms can be a useful tool for collaboration in an online class. For example, there could be chat rooms set up for group collaboration about the projects (including an area to share files), for talking about the assignments, or even for one or two scheduled chats to talk about topics from the course.

Over the two weeks of the online module test, it seemed that most activity happened only after sending e-mail reminders to the class. As one student said, it is easy to forget about the online course because there isn't a weekly class meeting to attend. Weekly e-mails, and even weekly assignments, would provide that reminder and would be a way to keep students engaged.

Similarity of content. One comment that recurred was the similarity of the online content to the textbook. Students were required to read the textbook chapters as well as go through the online content, and nine students remarked that the online content was an overview of the textbook material. Some liked the online format and others preferred the textbook, but it was clear that it was a duplication of effort to have both.

Assignments. Students had a variety of comments about the assignments (the online discussions). One student had a problem with the length of the postings. There was not enough time to complete the assignment, especially the case assignment. (The case assignment involved reading, reflecting on, and analyzing a lengthy case.) Conversely, one student noted that it was easy to answer--just "read others (postings) and answer similar to that". There was a lack of originality after the first few postings and it could be because students were taking the easy way out. However, the more postings that go up, the more difficult it is to find something new to write. One way to mitigate this problem is to give students marks for originality, for adding something new to the discussion.

Lessons Learned from the Survey

Overall, the test of the online modules went well, with few technical problems, possibly because of the group's relatively high level of computer knowledge. Students in the day class were given questions from the online modules on their exam, and the average on these questions (76%) was similar to the average overall on the exam (77%), so there is some evidence they learned as much as they did in the face-to-face portion of the class. Students generally liked the online format but, as with anything new, took some time to get used to it. Their comments gave evidence that the online format afforded them scheduling flexibility, an enjoyable and different way to learn, with the advantage of being self-paced. They were satisfied with the online modules overall. The suggestions given by the students were very useful in designing the rest of the online course.

Creation of the Online Course

The final activity for the project was the actual creation of the online course. After the survey results were analyzed, the lessons learned from the test modules were applied to the design of the entire course. The online course in its current form, at the time of submitting this paper, is enclosed on a CD-ROM, and instructions on the format and method of access are located in a file on the CD-ROM entitled "readme.txt".

It was planned to integrate the two test modules into the course. However, the textbook changed and the chapters in the new textbook (Stair & Reynolds, 2001) did not match exactly with the chapters in the old textbook (O'Brien, 2001). As a result, one module was discarded and the other had to be revised, increasing the workload somewhat. Nonetheless, the new textbook contains nine chapters and fits nicely into the University's 12-week semester, with one chapter per week, leaving the remaining three weeks for group work and presentations.

Some training on WebCT features is incorporated into the online course, with the aim of increasing confidence levels and minimizing frustration with the technology. There are instructions on posting to the discussion area and directions how to find help in WebCT. Students are given a WebCT lesson during the first class, which is a face-to-face meeting. In addition, an attempt will be made to have an ongoing dialogue about technical issues by e-mail and in the discussion area during the course.

Since a number of students did not use the supplementary links provided, there was obviously a disconnect between what the course designer intended and what the students perceived. From the course designer's perspective, links are time-consuming to find and maintain, so reducing their number reduces the workload. However, there are

also compelling reasons to provide a variety of links. The voyage of learning is an individual journey; each student has a different learning style and different needs. A variety of links furnishes an enriched experience and provides different ways to discover the course material. In the end, the number of links in the course was reduced based on the above feedback. Similar links are grouped together, and students are required to choose at least one of the links to complete an assignment or activity. That way, an individual journey is still possible, but students do not feel frustrated, incapable, or guilty for not getting through all the links. For example, students are presented with eight links about "spam" and are asked to find one definition that makes sense to them. Some of the links are to articles about spam, ethical issues regarding spam, and editorials about spam. Students can choose to read the entire articles or just pull out a definition. There is a required group project; groups of five students choose a subject area that interests them, research it, write a research report, and present their findings to the rest of the class. In the group project, all group members can contribute according to their strengths. Through the presentations, they teach their peers about their subject area.

Based on student comments, the online content should not mirror the textbook but instead supplement it. In the course, the online material is different from the textbook. It supplements and supports the textbook, but does not repeat it. Material from both the textbook and online modules are incorporated into the weekly assignments.

Since students emphasized the importance of interaction, a variety of interactive activities are built into the course, such as e-mail games, audio clips, fun quizzes, simulations, discussions, and chat sessions. For example, to learn about decision support systems (DSS) students try out a medical DSS on the web called PRODIGY (Practical

Support for Clinical Governance). They enter information about age, gender, and symptoms. PRODIGY then brings up information about the disease or condition, recommendations for treatment, referral information, patient advice, and other pertinent information

(<http://www.prodigy.nhs.uk/ClinicalGuidance/ReleasedGuidance/GuidanceBrowser.asp>).

Students learn about virtual reality modeling language (VRML) by visiting a virtual balloon factory demonstrating VRML (<http://bized.ac.uk/virtual/cb/>), and by evaluating websites that offer virtual real estate tours. Students learn about the Delphi method of decision-making by participating in a class decision-making e-mail activity using the Delphi method.

Weekly assignments are built into the course to encourage weekly engagement with the course material. In addition, regular e-mails sent to individuals and to the class keep students engaged, communicate class news, and solve problems along the way.

There are three case assignments in the course. These cases are snapshots of a particular business situation in a complex environment, and are based on real life situations. There are no right or wrong answers; students analyze the situation, come to their own conclusions, and argue their point logically. They are graded on identifying key issues and rationalizing their solutions. One group activity involves an asynchronous discussion of information systems issues like privacy on the Internet, the digital divide, and safety on the Internet. The issues require reflection and communication back and forth with others who may have differing opinions.

Based on student feedback, the criteria for marking discussion postings now awards points for adding something new to the conversation such as relevant links, a

differing opinion, or personal experiences. The expanded criteria are shown in Figure 3.

Further, the instructions emphasize appropriate length, usually one screen.

| |
|--|
| <p>Marking Criteria--Mgt 3061 A--Online Discussions:</p> <ul style="list-style-type: none">- Relevant content- Ideas well-developed - at least a full paragraph- Clear and easy to understand- Doesn't just "agree" but adds own ideas- Is respectful of others' opinions and ideas; gives positive, constructive comments; is encouraging- Uses information, insights from assigned readings and personal experiences- Introduces new ideas such as relevant links, or a differing opinion that adds to the discussion |
|--|

Figure 3.
Marking Criteria--Mgt 3061 A--Online Discussions

Virtual office hours are reduced to two hours per week (one hour on two different evenings) based on the little use they received in the module test. Students have alternatives for contacting the instructor, such as e-mail, telephone, and in-person meetings. The instructor will monitor the situation and make a decision at the end of the first offering of the course about whether to continue with virtual office hours.

In order to explore the potential of the chat feature, three of the nine weekly assignments require the use of chat, and students are encouraged to use the chat rooms to communicate with group members.

Evaluating the Effectiveness of the Online Course

The first offering of Management 3061 OL will be evaluated by means of an online survey, attached as Appendix C, which will be completed by the students after the class has finished. The response rate for the survey of the online course will likely be lower than the response rate for the online module test survey because it will be administered online, since it is not feasible to meet with all students in person.

The sampling frame for the pilot offering will be all the students taking Mgt 3061 OL in Spring 2003, approximately 40 students. The survey contains 26 multiple choice and open-ended questions. The open-ended questions will provide information that students wish to add that was not specifically asked on the survey. The answers to the open-ended questions will be typed, grouped into like categories, and the results summarized. The answers to the multiple choice questions will be entered into a statistical software program and analyzed to extract descriptive statistics and correlations, as per Appendix F.

From the survey, the researcher will gain information on how to improve the course for the future. The Faculty of Management and the Information Systems area group will learn about the viability of this online course, and will be able to use the information to decide whether to offer additional online courses.

Summary

Throughout the one-year timeframe of this project, the researcher wrote weekly in an online learning journal. The purpose of keeping a journal was to organize ideas, brainstorm, keep track of events, and reflect on what was happening at the time. The journal is enclosed with this paper on a CD-ROM, or is accessible online at <http://home.uleth.ca/~hodd/Journal/journal.html>.

The thoughts that follow were written after reviewing the learning journal and reflecting about the whole process of creating this online course.

Designing an online course is time-consuming. The first two chapters of the online course took 40 hours to create. Later on, the time requirement was less, but still as many as 15 hours for one chapter. Perhaps when designing a second course, the time requirements will be reduced.

While at a local distance education workshop, the researcher encountered *learning objects*, which can be useful for reducing the course designer's workload. Learning objects are on the Internet, and are tutorials, units, or even complete websites that other educators have created and offer for others to use, subject to individual copyright requirements. The usual process is to link to the website where the learning objects are located. The concept is to reuse excellent works of other educators in the spirit of not repeating what someone else has already done well. Learning objects allow students to experience a different teaching style than their own instructor's and provide variety in an online course. The disadvantage of learning objects is that users are normally only allowed to link to the site, and links may become broken when people rewrite their web pages or move to a different workplace.

The researcher used several learning objects in the course, one of which is a Java applet that shows maps of backbone service providers (<http://www.caida.org/tools/visualization/mapnet/Backbones>). Students choose which map they would like to see (the world or a particular continent) and then click on one or more backbone service providers. The applet then shows those providers' network connections on the map they have chosen. In this case, the learning object was able to provide specialized knowledge using specialized programming skills (Java applet) that the researcher did not possess.

An online course, like a face-to-face course, needs to be revised and updated every semester. In a case where the online course uses a textbook, even more extensive revisions are needed when changing to a new textbook. The chapters and content for the old and new may not match exactly and the online material must be revised. Furthermore, any copyrighted material such as images, overheads, presentations, or cases must be removed or permission sought from the publisher of the old textbook to use them. A decision to change the textbook must be made far ahead of the implementation date, in order to have time to update the online course materials. Of course, it is possible to make the online material somewhat independent of the textbook, but the online material should match at least the broad subject areas of the textbook. Some subject areas like information technology require updating every semester, and regular updating of the textbook is a must. This implies a continuing process of updating online materials and a concomitant heavy workload for the course designer.

Good technical skills in several areas are a necessity for online course designers. The skills the researcher used over the course of the project included web page creation,

use of WebCT, graphic manipulation, transferring files via FTP, and scanning text (optical character recognition). The researcher is fortunate to have a good technical background but still encountered frustrations with learning new software and using software that did not accomplish what was needed.

Anyone contemplating designing or teaching an online course is well advised to seek out training in the area of online or distance education beforehand. For example, the researcher found the following invaluable: workshops on WebCT, an online course about how to teach online courses, membership in distance education organizations (Alberta Distance Education Association and Canadian Association of Distance Education), and participation at distance education conferences and workshops.

Just as online course designers and instructors would find training useful, students too would benefit from having training available, should they need it. Help files are useful to students as they tackle the various assignments and learn how to use WebCT. WebCT help files are available in WebCT. In the case of this course, there were also customized help files on researching on the Internet, evaluating web resources, plagiarism, and analyzing a case.

Interactivity is very important in an online course. With an online course, students often forget about it because there is no requirement to attend a class weekly. Regular e-mails are important to remind students to keep on schedule, to give feedback, and to let students know they are on the right/wrong track. Retention and procrastination can be a problem, thus many small assignments are preferable to a few large ones. A variety of assignments prevent boredom, for example, Internet research, class online discussion, e-

mailing assignments, chat, e-mail games, peer review, small group discussion, and/or an assignment to be done away from the computer.

Online asynchronous discussions and synchronous chat room discussions are tools in the class that add interactivity. However, sometimes the sheer number of postings and volume of chat is hard to manage and difficult for students to follow and read. The researcher recommends chat room sessions with smaller groups of students and asynchronous discussions within smaller groups rather than whole class discussions.

The process of creating an online course was a rewarding experience and afforded a great opportunity for learning. Online education represents a learning paradigm that differs from the traditional lecture method which is still the norm at many universities. It is hoped that readers of this project paper will feel some of the same excitement that the researcher felt on entering the world of online learning, and are able to take something of value away with them.

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Appendix A

Survey of Management 3061 Students

Online Modules--Spring 2002

You are asked to complete and return this survey. The information from the survey will help me to improve the online version of Management 3061 that I am designing as a project for the M.Ed. program. Participation in the survey is voluntary and your responses will be kept strictly confidential. The information will be reported in general terms without specific reference to individual responses.

If you have any questions, please contact me (see below). If you have any general questions about the project, you can contact my Faculty Advisor, Marlo Steed, Faculty of Education (e-mail marlo.steed@uleth.ca, phone (403) 329-2189), or Keith Roscoe, Chair, Faculty of Education Human Subjects Research Committee (e-mail keith.roscoe@uleth.ca, phone (403) 329-2446). Thank you for your help.

*Pat Hodd
E-mail: hodd@uleth.ca
Phone: (403) 329-2108*

*Mailing Address: Room E-480, Faculty of Management
The University of Lethbridge
4401 University Drive
Lethbridge, AB T1K 3M4*

Please feel free to add whatever comments you think are appropriate.

Background Information

1. Major: _____
2. Age: _____
3. Gender: Male _____ Female _____
4. What is your level of computer knowledge?
 No knowledge
 Some knowledge
 Reasonable knowledge
 Very knowledgeable
 Expert

5. How long have you been using computers?

- Less than 1 year
 1 - 2 years
 3 - 5 years
 6 - 10 years
 11 - 15 years
 More than 15 years

6. How did you access the online modules most often?

- home computer
 computer at university
 work computer
 other - specify _____

7. Have you ever taken a course that was offered totally online? ("Totally online" means the main mode of instruction was via the Internet, with very few or no face-to-face class meetings.)

Yes No

Usefulness of Materials

Please indicate how useful each of the following was in helping you learn the course material. Circle the appropriate number. If you did not use the item, please check "did not use".

8. Course text book

not useful at all 1 --- 2 --- 3 --- 4 --- 5 very useful did not use _____

Additional comments:

9. Online content in the Content Module

not useful at all 1 --- 2 --- 3 --- 4 --- 5 very useful did not use _____

Additional comments:

10. Links to supplementary resources online

not useful at all 1 --- 2 --- 3 --- 4 --- 5 very useful did not use _____

Additional comments:

11. Online discussion assignment for Chapter 11 (Security & Ethical Challenges of E-Business)

not useful at all 1 --- 2 --- 3 --- 4 --- 5 very useful did not use _____

Additional comments:

12. Online case discussion for Chapter 12 (Enterprise & Global Management of E-Business Technology)

not useful at all 1 --- 2 --- 3 --- 4 --- 5 very useful did not use _____

Additional comments:

13. How useful overall were the online modules?

not useful at all 1 --- 2 --- 3 --- 4 --- 5 very useful did not use _____

Additional comments:

Time Spent

14. Roughly how many hours did you spend per week working **online** on the modules?

Circle the appropriate answer.

less than 1 --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- 8 --- 9 --- 10 --- more than 10

Additional comments:

15. Roughly how many hours did you spend per week working **offline** on the modules?

less than 1 --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- 8 --- 9 --- 10 --- more than 10

Additional comments:

Technical Issues

16. Did you encounter technical difficulties?

Yes _____ No _____

17. If you encountered technical difficulties, were you able to resolve them?

Yes _____ No _____

18. If you encountered technical difficulties, what were they?

Additional comments:

Rating of Online Modules

19. How satisfied were you with the online interaction with the instructor of the online modules?

not satisfied at all 1 --- 2 --- 3 --- 4 --- 5 very satisfied

Additional comments:

20. How satisfied were you with the online interaction with fellow classmates?

not satisfied at all 1 --- 2 --- 3 --- 4 --- 5 very satisfied

Additional comments:

21. How satisfied were you overall with the online modules?

not satisfied at all 1 --- 2 --- 3 --- 4 --- 5 very satisfied

Additional comments:

22. How difficult were the online modules to complete, compared to the difficulty level in this class generally?

much less difficult 1 --- 2 --- 3 --- 4 --- 5 much more difficult

Additional comments:

23. How much work were you required to do for the online modules, compared to the work required for this class generally?

much less work 1 --- 2 --- 3 --- 4 --- 5 much more work

Additional comments:

24. Overall, how would you rate the online modules?

poor 1 --- 2 --- 3 --- 4 --- 5 excellent

Additional comments:

25. What suggestions do you have to improve the online modules?

Thank you for your help!

Appendix B

Faculty of Education

Human Subject Research Approval Form

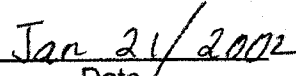
Title of Study: Creating an Online Course**Investigator: Patricia Hodd****E-mail: hodd@uleth.ca****Phone (work): 329-2108 (home): 320-8031****Category of Research: M.Ed. Project**

Supervisor's Approval

I have: a) ensured that all sections are completed satisfactorily,
b) reviewed all the above information for accuracy and completeness, and
c) made sure that all necessary supporting documentation has been provided.



Supervisor Marlo Steed



Date

Purpose of Research

The purpose of this research is to explore students' attitudes about taking online courses, to gauge the success of the two online modules that will be piloted as part of this M.Ed. project, and to learn ways to improve the online course that will be created as part of this M.Ed. project.

Duration of Research

The data collection will be conducted during March 2002, during one class period, and the data will be analyzed over the period March - November 2002.

Research Subjects

The subjects are students at the University of Lethbridge who are currently registered in Management 3061 (Information Systems & Management), Sections A and N, for the Spring 2002 semester. All students will be asked to complete the survey. Both classes are offered on the Lethbridge Campus in face-to-face class format.

Methods of Data Collection

Data will be collected via a survey of students registered in Management 3061 A and N. The survey will be administered in class and will take students approximately 15 minutes to complete. The instructors of Management 3061 A and N, Gordon Hunter and Jim Clark, have given their permission to come into their classes and give the students the survey. The survey is attached.

Free and Informed Consent

Students will be informed that participation is strictly voluntary and that they can withdraw at any time. This information is also at the top of the survey form.

Privacy and Confidentiality

The students' privacy and confidentiality will be preserved. Student ID numbers will be the only identifying information. No individual student information will be given to any other parties. Students will be informed that their privacy and confidentiality will be maintained, and the same statement will be at the top of the survey form. The information will be reported in general terms without specific reference to individual responses.

Right to Inquire About Research

All students who participate in the survey will be given an information sheet showing the purpose of the research and contact information for the researcher and the supervisor of the project (copy attached). They will be informed that the research results will be posted to the researcher's home page, should they wish to read the results.

Access to Data and Research Materials

The only person who will have access to the survey forms will be the researcher. The survey forms will be stored in a locked file cabinet and shredded once the project is finished. The data will be entered into a spreadsheet and only the researcher and the project supervisor, Marlo Steed, will have access to this material. The written analysis will be a public document, accessible to anyone; however, student information will be reported in general terms without specific reference to individual responses, and students will not be identifiable.

Balance of Harm and Benefit

There is no risk of physical or emotional harm to the students. There is no deception of subjects involved. The anticipated benefit is that the information gained will assist the researcher to design a good online course, which will in turn benefit future students who take the course.

Attachment to Human Subject Research Approval:

**INFORMATION ABOUT STUDENT SURVEY
ONLINE MODULES FOR MANAGEMENT 3061 - SPRING 2002**

The survey that you are being asked to complete is part of my studies in the Master of Education program at the University of Lethbridge. I would like to know what you thought about the two online modules that you completed in this class. I am designing an online version of Management 3061 and the information you give will help me to improve the course.

Participation in the survey is completely voluntary and your responses will be kept strictly confidential. The information will be reported in general terms without specific reference to individual responses. Completion of the survey implies your consent to participate in the research described above. If you do not wish to participate, simply do not complete the survey.

*If you have any questions, please contact me (see below). If you have any general questions about the project, you can contact my Faculty Advisor, Marlo Steed, Faculty of Education (e-mail marlo.steed@uleth.ca, phone (403) 329-2189), or Keith Roscoe, Chair, Faculty of Education Human Subjects Research Committee (e-mail keith.roscoe@uleth.ca, phone (403) 329-2446).
Thank you for your help.*

If you are interested in reading about the results of the project and survey, the project will be posted on my web page in December 2002 or January 2003:

<http://home.uleth.ca/~hodd>

YOUR ASSISTANCE IS VERY MUCH APPRECIATED!

*Pat Hodd
E-mail: hodd@uleth.ca
Phone: (403) 329-2108*

*Mailing Address: Room E-480, Faculty of Management
The University of Lethbridge
4401 University Drive
Lethbridge, AB T1K 3M4*

Appendix C

Feedback Survey For Management 3061 OI

Spring 2003

You are asked to complete and return this survey. The information from the survey will help me to improve this course. Participation in the survey is voluntary and your responses will be kept strictly confidential.

If you have any questions, please contact me (see below). Thank you for your help.

Pat Hodd

E-mail: hodd@uleth.ca

Phone: (403) 329-2108

Mailing Address: Room E-480, Faculty of Management

The University of Lethbridge

4401 University Drive

Lethbridge, AB T1K 3M4

Please feel free to add whatever comments you think are appropriate.

Background Information

1. Major: _____

2. Age: _____

3. Gender: Male _____ Female _____

4. What is your level of computer knowledge?

_____ No knowledge

_____ Some knowledge

_____ Reasonable knowledge

_____ Very knowledgeable

_____ Expert

5. How long have you been using computers?

_____ Less than 1 year

_____ 1 - 2 years

_____ 3 - 5 years

_____ 6 - 10 years

_____ 11 - 15 years

_____ More than 15 years

6. How did you access the online modules most often?

- home computer
 computer at university
 work computer
 other - specify _____

7. Have you ever taken a course that was offered totally online? ("Totally online" means the main mode of instruction was via the Internet, with very few or no face-to-face class meetings.)

Yes _____ No _____

Usefulness of Materials

Please indicate how useful each of the following was in helping you learn the course material. Circle the appropriate number. If you did not use the item, please check "did not use".

8. Course text book
 not useful at all 1 --- 2 --- 3 --- 4 --- 5 very useful did not use _____

Additional comments:

9. Online content in the Content Module
 not useful at all 1 --- 2 --- 3 --- 4 --- 5 very useful did not use _____

Additional comments:

10. Links to supplementary resources online
 not useful at all 1 --- 2 --- 3 --- 4 --- 5 very useful did not use _____

Additional comments:

11. Case Assignments
 not useful at all 1 --- 2 --- 3 --- 4 --- 5 very useful did not use _____

Additional comments:

12. Online Discussions
 not useful at all 1 --- 2 --- 3 --- 4 --- 5 very useful did not use _____

Additional comments:

13. How useful overall was this course?

not useful at all 1 --- 2 --- 3 --- 4 --- 5 very useful did not use _____

Additional comments:

Time Spent

14. Roughly how many hours did you spend per week working **online** on this course?

Circle the appropriate answer.

less than 1 --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- 8 --- 9 --- 10 --- more than 10

Additional comments:

15. Roughly how many hours did you spend per week working **offline** on this course?

less than 1 --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- 8 --- 9 --- 10 --- more than 10

Additional comments:

Technical Issues

16. Did you encounter technical difficulties?

Yes _____ No _____

17. If you encountered technical difficulties, were you able to resolve them?

Yes _____ No _____

18. If you encountered technical difficulties, what were they?

Additional comments:

Rating of Course

19. How satisfied were you with the online interaction with the instructor of this course?

not satisfied at all 1 --- 2 --- 3 --- 4 --- 5 very satisfied

Additional comments:

20. How satisfied were you with the online interaction with fellow classmates?

not satisfied at all 1 --- 2 --- 3 --- 4 --- 5 very satisfied

Additional comments:

21. How satisfied were you overall with this course?
not satisfied at all 1 --- 2 --- 3 --- 4 --- 5 very satisfied

Additional comments:

22. How difficult was this course, compared to the difficulty level of other courses you have taken?
much less difficult 1 --- 2 --- 3 --- 4 --- 5 much more difficult

Additional comments:

23. How much work were you required to do for this course, compared to the work required for other courses you have taken?
much less work 1 --- 2 --- 3 --- 4 --- 5 much more work

Additional comments:

24. Overall, how would you rate this course?
poor 1 --- 2 --- 3 --- 4 --- 5 excellent

Additional comments:

25. Why did you take this online course?
-

26. What suggestions do you have to improve the course?
-

Thank you for your help!

Appendix D

Management 3061: Information Systems & Management

Spring 2002

Online Modules Information Sheet

For this course, you will be participating in a unique online project. Since this course deals with information technology, the best way to learn about it is to use it. To accomplish this, the last two chapters will be taught in online format:

- Chapter 11 - Security and Ethical Challenges of E-Business
- Chapter 12 - Enterprise and Global Management of E-Business Technology

There will be no lecture for the time scheduled for these two chapters (March 7, 12, 14, and 19). Your online instructor, Pat Hodd, will be available online, in person, and by telephone during the two weeks (see contact information below).

Workload Issues. The amount of work expected for the online modules is no more than you would have normally in this class. That is, you will be expected to read the two chapters in the text as usual. Rather than attending the three-hour class, you will be expected to spend three hours working online for each module.

Advantages of Online Format:

- You can access the modules from any computer with Internet access and a web browser.
- You have a whole week to complete each module.
- There will be some online group activities, but there will be no scheduling problems because your group doesn't have to meet online at the same time.
- The activities will be interactive and student-focused; your online instructor will act as a facilitator and resource person.

Software. The online modules will use WebCT, which you may already be familiar with. WebCT is used extensively throughout the University. You will need a computer with Internet access and a web browser such as Internet Explorer or Netscape. Note that WebCT is not compatible with the newest versions of Internet Explorer (6.0) and Netscape (6.0), which come bundled with Windows XP, incidentally.

Activities:

- reading background material about the chapters in WebCT and following links provided for supplementary readings on the Internet
- researching a pertinent issue over the Internet using the links provided plus your own searches
- discussing the issue online within your group
- discussing a case online within your group

Survey. You will be asked to complete a short, 10-minute survey after the online modules are finished.

Contact Information for Online Instructor:

Pat Hodd, Faculty of Management

Room E-481, University Hall

Phone: 329-2108

Fax: 329-2253

E-mail: hodd@uleth.ca

The instructor for the two online modules is Pat Hodd; she is currently working on a pilot project to develop a totally online Management 3061 which is scheduled to be first offered in Spring 2003. You may already know Pat, who is the Program Manager in the advising office in Management.

Appendix E

Survey Results--Written Comments

Management 3061 Online Modules--Spring 2002

Usefulness of Materials

8. Course text book

- Chapters were very long and often tedious to read.
- Case studies were extremely interesting.
- I used the textbook for lectures, but did not use when doing online modules.
- textbook was very dry and long
- I read the text first, so the online stuff was just an overview of the text.
- I found the web just as informative, just more to the point.
- I found it wasn't necessary to read the text beforehand and it didn't always have to be used when doing the assignments.
- information overload compared to what was discussed in class.
- Useful in terms of text knowledge.

9. Online content in the Content Module

- I liked the examples and websites that could be accessed but was quite comfortable using the text at this point in the course.
- More helpful than textbook as info. was condensed.
- very clearly layed out
- Easy to use. Enjoyable. Different.
- better than reading the book - easier because it was online, you had to
- The content module made it convenient to do homework.
- was useful to have more info posted on site
- gave an overview

10. Links to supplementary resources online

- very interesting, but maybe too many
- Online quizzes were good.
- Didn't use them that much, when I did they were good.
- Gave real world examples.
- too many links
- some links did not work, the audio ones were interesting
- Need speakers for audio (none in univ. labs)
- Didn't use all of the links but some were interesting.

11. Online discussion assignment for Chapter 11 (Security & Ethical Challenges of E-Business)

- All people had to do was read others and answer similar to that.
- good to see everyone's P.O.V.
- Allowed a lot of people to share and present different opinions.

- have all discussion responses/comments up all the time
- not really helpful

12. Online case discussion for Chapter 12 (Enterprise & Global Management of E-Business Technology)

- hard to reply when you have to search for responses.
- not really helpful
- More time. 3 days not enough.
- my group was "absent" until the final day

13. How useful overall were the online modules?

- Whether you read the book or online module it is still the same.
- interesting, similar to a class discussion

Time Spent

14. Roughly how many hours did you spend per week working **online** on the modules?

- Didn't take too much time to complete.
- Allows you to work @ your own pace, fast if it sinks in, slow if you aren't grasping it.
- I spent roughly the same amount of time as I would in class.
- I only had time between classes to work on the modules as I don't have a computer at home & I'm not driving over to the University just to do these assignments for only 10% of my grade.

15. Roughly how many hours did you spend per week working **offline** on the modules?

- [4 hours] Reading text, taking notes, etc.
- I didn't find it necessary.

Technical Issues

17. If you encountered technical difficulties, were you able to resolve them?

- Yes, but I was frustrated.

18. If you encountered technical difficulties, what were they?

- We were not shown how to use the WebCT.
- Difficult to use - It might be useful to walk students through once.
- posting message in the right spot
- was not sure if posting went through. Instructor was very helpful.
- I was writing my comments and tried to go back to look at something and my stuff disappeared. I had to rewrite all of it again.
- Forgot how to post my discussion.
- couldn't post to the right spot, had to select view all messages.
- XP was supposed to have a compatibility issue but I had no probs.
- not able to access WebCT sometimes, it was down.
- I needed help logging in. It didn't work.
- Windows XP compatibility
- No audio.

Rating of Online Modules

19. How satisfied were you with the online interaction with the instructor of the online modules?

- Virtually no responses, not to my personal responses.
- comments on the discussions were excellent.
- prefer class interaction.
- not bad, not overly useful
- was good to have instructor's response to students
- Hard for teacher to reply to all posts.
- [satisfied with online interaction] not satisfied with my grades though.
- did not use.
- I don't think there was much interaction.
- no comments for ch. 12.
- the instructor who taught the course would've helpful as well.
- grades online is good.

20. How satisfied were you with the online interaction with fellow classmates?

- Did not learn anything, no effort needed, didn't need to read modules to answer questions.
- Would have been better for replies if we could have replied to anyone so that noone had to wait for other group members to do the module in order to reply.
- Communicated more than usual online than I usually do in class.
- most only went online once.
- Difficult to converse effectively because often students must access from school so they did not have as much time to respond to comments.
- Takes much longer, can be confusing, lacks social environment.
- ch. 12 was delayed.
- replying for replying's sake

21. How satisfied were you overall with the online modules?

- did not take to it.

22. How difficult were the online modules to complete, compared to the difficulty level in this class generally?

- same difficulty
- same difficulty

23. How much work were you required to do for the online modules, compared to the work required for this class generally?

- about the same - a little less
- same amount of work

24. Overall, how would you rate the online modules?

- I didn't like reading notes off the Internet. I felt like the experience was similar to reading the text book which was also required. The links were good and they helped.
- it was nice to see ex.[amples] while working.

25. What suggestions do you have to improve the online modules?

- More fun fact tidbits and quizzes for self exploration.
- More private answers!
- I think the online modules were very useful and set up very well [happy face].
- more instruction before using - maybe take students into LAB!
- Maybe include videos or riddles or games to spice it up.
- need more questions that test the knowledge rather [than] case analysis for the whole course.
- The content was good and interesting. I thought there could be more in depth.
- Make the toggling between discussion board and course content easier!
- We are here to be taught! If anything it only replaced the textbook. I am paying tuition to gain knowledge from the professor.
- more effective than I expected
- Maybe a quicker way to get through the information, such as point form.
- Have mini-tests online (WebCT) obviously can be open book or require students to come to the lab to write them so it is a closed book exam.
- split up modules more, possibly, hard to look at a computer screen that long sometimes.
- more interactive links, especially the audio links (eg CIO interview)
- Not enough time was given for the second assignment.
- in general it was good.
- I found the online modules to be frustrating. I paid a lot of money to have an instructor for 3061 and this was taken from me. Do I get a refund? This (WebCT) should have been an OPTION for students, not forced upon them. After this experience, I would NEVER recommend taking an online course.
- E-mail warnings when something is due. I completely forgot about the 2nd module.
- fix Windows XP compatibility prob.
- It is a wonderful idea and I hope it works out. It makes things a lot easier for time wise.
- Video clips - or other media files, don't learn well through reading, other mediums would be beneficial.
- XP support for future.
- On-line modules only work if you have people willing to communicate back & forth. It also works better if the person has a computer at home.
- More detailed notes needed.
- Some of the information in the modules were repeating what was in the text so it felt as if there was double-reading.
- Don't make question answers sooo long. It discouraged replying and thorough reading.

Appendix F

Statistical Treatment of Variables in Online Course Survey

| Variable or Variable Group | Statistical Treatment |
|--|---|
| amount of work | descriptive statistics |
| computer knowledge | descriptive statistics |
| difficulty level | descriptive statistics |
| experience with online format | descriptive statistics |
| importance of face-to-face interaction | descriptive statistics correlate with: -rating of course -satisfaction with course -satisfaction with online interaction -viability of online format |
| rating of course | descriptive statistics correlate with -rationale for taking course -satisfaction with course -satisfaction with online interaction -usefulness of materials -viability of online format |
| rationale for taking course | descriptive statistics |
| satisfaction with course | descriptive statistics correlate with: -rationale for taking course -rating of course -satisfaction with online interaction -usefulness of materials -viability of online format |
| satisfaction with online interaction | descriptive statistics |
| technical difficulties | descriptive statistics correlate with: -computer knowledge -difficulty level -rating of course -satisfaction with course -time spent -viability of online format |
| time spent | descriptive statistics |
| usefulness of materials | descriptive statistics |
| viability of online format | descriptive statistics |

