Web Based Content and Hybrid Teaching:
Student Perceptions of the Effectiveness of Using
Web Based Content and Hyper-Linked Teaching Units
in Teaching Hybrid Business and Marketing Post Secondary Classes

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Submitted in partial fulfillment
of the requirements for the degree of
Master of Education

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Abstract

This exploratory, descriptive action research study is based on a survey of a sample of convenience consisting of 172 college and university marketing students, and 5 professors who were experienced in teaching in an internet based environment. The students that were surveyed were studying e-commerce and international business in 3rd and 4th year classes at a leading university in Ontario and e-commerce in 5th semester classes at a leading college. These classes were taught using a hybrid teaching style with the contribution of a large website that contained pertinent text and audio material. Hybrid teaching employs web based course materials (some in the form of Learning Objects) to deliver curriculum material both during the attended lectures and also for students accessing the course web page outside of class hours. The survey was in the form on an online questionnaire. The research questions explored in this study were:

1. What factors influence the students’ ability to access and learn from web based course content?

2. How likely are the students to use selected elements of internet based curriculum for learning academic content?

3. What is the preferred physical environment to facilitate learning in a hybrid environment?

4. How effective are selected teaching/learning strategies in a hybrid environment?

The findings of this study suggest that students are very interested in being part of the learning process by contributing to a course web site. Specifically, students are interested in audio content being one of the formats of online course material, and have an interest in being part of the creation of small audio clips to be used in class.
Acknowledgements

Inspiration. In the early 1970s, my father, W. George Richardson, CD, OBM, managed to complete his Master’s degree part-time, while teaching full-time as a young professor at Queen’s University and raising children on a working farm, and carried this out with dignity and grace. His example served to guide me when I approached the idea of doing my Master’s degree, and his encouragement has been much appreciated.

Motivation. My children WDTR, TJNR, and SFBR

Appreciation. Dr. Joe Engemann was not only my professor for several Brock courses, and my thesis advisor, but also a nice person. Joe, you have my most sincere thanks for your kindness, at all hours.

Recognition. Dr. Selia Karsten served as my colleague in the same department at Seneca College, and we have also been sharing the trials and tribulations of teaching at the University of Toronto. Selia allowed herself to be cajoled into being part of my thesis committee until health challenges rose – but her continued advice and compassion was much appreciated right to the end. Her great experience in teaching in the “Information Age” was a wonderful help in many aspects of researching this thesis.

Dr. Katharine Janzen has literally “bookended” my M.Ed. having given me helpful advice when I first sent off my application in early 2002 to her final contributions to rewriting the thesis in July 2006 and filling in for Selia on the committee. Her boundless kindness and great experience with M.Ed. students was critical to my completion of this situation.
Corinne Falconer, my Department Chair at Seneca in 2002, and Angela Zigras, my Chair in 2006, were generous in their support and I am thankful for their many considerations.

Tony Fu, Senior Technical Specialist in the eLearning Centre at Seneca College, helped me with the special HTML and JAVA code required to make the survey work online. Susan Learney is the Faculty Liaison in the eLearning Centre and provided many helpful tips on some of the topics related to Learning Objects.

My colleagues at Seneca College, professors Stefan Kanitz, Dave Bath, Fred Clark, Clay Rolfe, Mike O’Neill, and Jim Davidson provided encouragement, and their friendship is much appreciated.

MRP (AKA Mrs. Richardson) ti amo.
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CHAPTER ONE: INTRODUCTION TO THE STUDY

This is an exploratory descriptive study of the perceptions of some students and faculty, who have experience with hybrid teaching and learning, regarding selected characteristics and elements that affect the efficacy of hybrid teaching strategies in postsecondary education. This study explored how innovative web based structures such as enriched Learning Objects, online video clips, and audio files, have been used to enhance college and university student learning where the participants have a high expectation that teaching will be conducted using the most contemporary technologies and Instructional Technology (IT) applications. As stated by Abbott and Crib (2001), “Early adopters often use technology in innovative ways and studies of their practices have assisted in the understanding of later developments” (p. 332). As well, according to Johnson, Aragon, Shaik, and Palma-Rivas (2000), such research is necessary since there is a lack in sources of information that specifically discuss survey-based studies of student use of online course material. “With little empirical knowledge about Internet-based education outcomes, the need for research in this area is not only timely, but also imperative” (Johnson et al., p. 29).

This study explored factors that affect ways of implementing the use of technology in hybrid teaching and learning, which has more recently been referred to as blended or mixed learning. As hybrid teaching was the term used most predominantly during the time this study was conducted, I have used this term throughout this thesis.

Background of the Problem

Using course content posted on the World Wide Web (WWW) and applying the technical infrastructure of the Internet has created opportunities for teaching and learning
that began to be exploited in the late 1990s and early years of the new millennium.

Owston (1997) said,

Nothing before has captured the imagination and interest of educators simultaneously around the globe more than the World Wide Web. The Web is now causing educators, from pre-school to graduate school, to re-think the very nature of teaching, learning, and schooling. (p. 27)

One of the ways of rethinking the nature of teaching is to blend traditional lecture approach with online web based content, a practice that I have been developing since 1997. The online material I developed has been used by the students to prepare in advance for lectures and is also used during the lectures. By 2001, this blend of traditional lectures and web based content became known as hybrid teaching or hybrid instruction. Spanier (2000) states, “hybrid instruction is the single greatest unrecognized trend in higher education today” (p1). Students, empowered with technical resources, such as search engines, may provide access, quickly and thoroughly, to information about thousands of topics even to the extent where they go beyond the curriculum objectives.

Early applications of Internet-based technologies were in the form of fully online courses. Through the first years of the new decade of this millennium, some experiences with fully online courses have not been satisfactory. In a personal communication with James Turk, Director of the Canadian Association of University Teachers (March 22, 2005), he said that “There's a lot of evidence to show that online education is not particularly useful.” In supporting his criticism against fully online courses versus hybrid courses, Turk continued, “One piece of evidence is the reported high drop-out rates from strictly online classes. (Based on) all the anecdotes I've heard, they're dramatically higher
(than regular courses).” This lack of confidence in fully online courses has lead to the development and popularity of hybrid teaching.

Hybrid teaching involves professors using web based content in an attended classroom and lecturing with the complement of a large overhead screen that projects the website onto the front of the classroom or lecture hall. This method of teaching, as of late 2005, was only 3 or 4 years old at some colleges and universities in Ontario while in other locations, it was just being started.

Using a mixed methods design, this study investigated certain circumstances of hybrid teaching in order to identify some methods and techniques that adequately address student expectations and further sought to ascertain what situations can be developed that successfully encourage student engagement in the context of the postsecondary educational environment.

From a personal perspective, the following describes the background of the problems that led to this study. In 1997, while teaching marketing and business subjects at Eastern College (pseudonym) located in a large multiculturally diverse urban centre in southern Ontario, I relied heavily on the use of PowerPoint slides, which was a teaching method that had just become popular (Naber & Köhle, 2002). Teaching using PowerPoint accomplished several objectives at Eastern College, not the least of which was the transmission of course material to a student audience that had a large number of ESL students.

It did not take many weeks of using PowerPoint for students to ask, “Can I please have a print-out of those to follow along?” Printing the PowerPoint slides for a few students was not a problem, but soon everybody in the class was eager to obtain this
“advantage,” and the departmental secretaries were simply not willing to send so many pages for printing each week.

Looking for a way to disseminate the content of PowerPoint slides to everyone in the class, it became apparent that a solution could be effected by posting the slides online and then letting the students download the .ppt file so they could print out their own version of the slides in any size they wanted and in colour or black and white if they chose. In order for posting to be done to the Eastern College website, it became necessary to ask several senior academic supervisors and department chairs for permission to have space on the college server and an allocation of space into which the files could be stored. Permission for the server space allocation was given in late 1997 and, in October of that year, I became the first professor of Eastern College to develop and use a web page for instructional purposes.

Initially, the web page for the course I was teaching was a simple .htm file that welcomed students to the site and provided links to download the PowerPoint slides for the chapters. After a few weeks it became apparent that other simple information, such as the course grading structure, course outline, and assignment information, could be posted and made accessible to students. By mid-1998 the initial website had grown to include PowerPoint slides for two marketing courses and one international business course. In mid-1998 to late 1998 it became possible to have an Internet-connected computer, on a wheeled cart, brought into the classroom, and it was then possible to go “live” on the website within the classroom. Going live on the Web in class presented several problems. First, I needed a computer in the classroom that was loaded with a browser, such as Netscape or Internet Explorer, and, secondly, I needed a place in the wall to plug in the
computer so the modem would have access to a line that would allow me to log onto the Web. In 1997 and 1998 there were only a few classrooms at Eastern College that were wired such that this connectivity could take place.

The dynamic of being live on the Internet in class in 1998 created a teaching and learning situation which, based on my review of the literature, was relatively new and had not been done by many faculty in the late 1990s (Carter, 1998; Wiesenmayer & Koul, 1998). This was challenging to me in the context of my previous teaching in the early 1990s and 1980s.

An opportunity presented itself for a change in my employment and I moved from Eastern College to Ontario College in mid-1999. In 1999 Ontario College launched a postdiploma program in e-commerce and I was challenged with creating some of the first e-commerce and marketing courses to be delivered in a classroom setting at Ontario College, with substantial content also online. That year was the beginning of my experience with what later came to be called “hybrid teaching” and is now often referred to as “blended” or “mixed-mode” teaching and learning.

In mid-2002, I reflected that after 3 years of teaching using web based content in an attended classroom setting, I needed to explore what methods were working, what should be advanced, and what should be avoided. Furthermore, by mid-2002 Ontario College and the other colleges and universities in Canada were enjoying the challenges of teaching to an audience of students that was very comfortable and familiar with all the latest web based technologies. Although this may be inconsistent with Marshall McLuhan’s famous quote, it became apparent to me as we moved through 2002 and 2003 that using web pages to teach about making web pages meant, in a sense, that the medium
was the teaching methodology, and the teaching methodology was inherent in the medium.

Federman (http://www.mcluhan.utoronto.ca) writing on the University of Toronto website honouring McLuhan, notes:

Whenever we create a new innovation – be it an invention or a new idea – many of its properties are fairly obvious to us. We generally know what it will nominally do, or at least what it is intended to do, and what it might replace. We often know what its advantages and disadvantages might be. But it is also often the case that, after a long period of time and experience with the new innovation, we look backward and realize that there were some effects of which we were entirely unaware at the outset. (Federman, 2004, p. 3)

Federman’s (2004) reflections contributed to my concern that just because my own website was quite large, and had a lot of hits, this did not necessarily mean it was effective as an academic tool. Although student feedback consistently mentioned my website in the most positive way, I felt that if it continued to grow, it should grow in the right direction such that it would be a useful tool to enhance student learning. I wanted to see if there were better ways of developing this website so that it would effectively contribute to student learning. This study provided the opportunity for such an exploration.

**Statement of the Problem Context**

As Forman (1987) states, “The teacher as the primary source of knowledge no longer suffices in a world where knowledge doubles every seven years and 10,000 scientific articles are published every year” (p. 22). At the same time that some teachers
are finding new information technology challenging, other teachers are rejoicing in the ability to use the structure of the Internet and the empowerment of developing their own websites to provide course content in a way that was not previously possible. According to Birman, Kirshenstein, Levin, Matheson, and Stevenson (1997),

Studies on the use of the Internet typically show that the integration of the Internet into the classroom leads to increased access to information, opportunities to communicate with experts, access to external resources, and greater motivation for teachers and students to learn. (p. 5)

While the opinions of Birman et al. (1997) were probably valid for the late 1990s, more recently, in 2002, Jacek, president of the Ontario Confederation of University Faculty Associations (as cited in Rola, 2003) stated that “Web-based educational tools are a valuable resource for both students and teachers…the students appreciate the flexibility and access they allow, while educators say the Web enables them more time to concentrate on lecturing and interaction with students” (p. 1).

While use of Web technologies and hybrid teaching allows more time for teaching and interaction with students, the time needed for reworking the course content and materials to fit into an online environment has to be taken into account as well. Garnham and Kaleta (2002) cautioned that,

To teach a successful hybrid course an instructor must invest significant time and effort in redesigning a traditional course. Because class seat time is reduced and a significant part of learning is moved online, instructors must reexamine their course goals and objectives, design online learning activities to meet those goals
and objectives, and effectively integrate the online activities with the face-to-face meetings. (p. 14)

Publishing companies and other businesses serving the educational community, pressured by an intensely competitive environment and a rapidly changing technological environment, are jockeying for position to serve the faculty that are developing innovative methods of teaching and learning. Publishing company McGraw-Hill Ryerson commissioned a study of online learning in 2002. Researched by the firm of Campbell Michener & Lee, and RML Research, the McGraw-Hill study was titled “The Role of E-Learning in Student Success.” The study, released in November 2002, evaluated the importance of computer technology on postsecondary student success and consisted of the combined findings of three annual surveys conducted among more than 2,000 Canadian and U.S. educators. One of the findings of the McGraw-Hill Ryerson study, which was widely quoted in Canadian and American media in early 2003, reported that “the vast majority [of faculty] now see Web-based teaching tools as more important than traditional aids such as books” (McGraw-Hill Ryerson, 2003, p 10).

In summary, the first problem identified is that more and more college and university students are using the Web for learning, and have expectations that their professors will deliver web based content to augment the lectures and classes they attend – a situation we refer to as hybrid teaching. What are some specific ways of structuring online content such that students are enthusiastic about using the material in conjunction with information from the lectures and traditional sources?

Secondly, more and more faculty at colleges and universities are developing their own websites to provide course content. There is a problem if the development of this
material (content and organizational layout) does not meet the expectations of the students, and in that it may be a waste of scare resources such as the huge amount of time needed in creating such content. What are some of the ways professors can organize content such that it can be easily accessed and used effectively as part of a blended learning process?

**Purpose of the Study**

The purpose of this study was to explore the application of technologies to teaching business and e-commerce courses at the undergraduate level at college and university. I recognized that teaching that ignores individual cultural differences, ESL capabilities, or learning styles is problematic in the multicultural classrooms in urban Canada where I was teaching at that time. Criticisms, such as the belief that face-to-face teaching by itself, with no web based content, is weaker than blended or hybrid teaching “have escalated as multimedia and telecommunications technologies continue to evolve and advance, with promises of providing the learner with a richer, more meaningful education relevant for the future workplace and learning environments” (Relan & Gillani, 1997, p. 1). Perkins (1996) claims that “[t]he traditional approaches of teaching have been challenged in the ability to provide the students with an enhanced learning environment as compared to a ‘basic’ foundation” (p. 89).

In my experience, large numbers of college and university students are using the Web for many purposes. Considering that these students have expectations that many of the entities they interact with, such as banking, music, job hunting, will have web based content, it can, therefore, be expected that students will anticipate that the faculty
teaching their courses will present course material online to facilitate the in-class attended lectures and seminars.

Hall (2002) observed a year of online teaching at his institution and concluded that "students expect all modules to be supported" (¶ 1) by the online learning framework they had created. Hall explained that his students' expectations were quite high and that this put a burden on the professors to match those expectations.

If it is indeed true that students have high expectations of having course content online, then it would be useful to explore what professors have been posting on their websites and ascertain, by asking the students, what enhances their learning and what does not. If we ask such questions of web savvy students, the feedback may help professors to improve the quality and organization of their online content portion of the courses they teach.

Since 1997 I have been building a website on which there is much content, such as text files, sample exam questions, lecture notes, and images and diagrams, for the various-business, marketing, and e-commerce classes I have taught at Eastern College, Ontario College, and Central University. In order to help me to ensure that the existing content is pedagogically appropriate, effectively organized, indexed, and linked, such that it is easily accessible and navigable, the students in those classes were asked, using an online multiple-choice questionnaire, to comment on specific features of the site content. I will use the findings of this study to improve my own website and I will share this experience with other professors in a way that may be professionally constructive and rewarding.
In summary, the purpose of this study was to determine what students want in hybrid courses. For students engaged in a hybrid learning environment (as in my classes), I wanted to know how what is provided at present on the Internet might be enhanced or improved to meet their expectations.

**Research Questions**

The specific research questions that drove this study were:

1. What factors influence the students’ ability to access and learn from web based course content?
2. How likely are the students to use selected elements of Internet-based curriculum for learning academic content?
3. What is the preferred physical environment to facilitate learning in a hybrid environment?
4. How effective are selected teaching/learning strategies in a hybrid environment?

**Rationale**

During the time period in which I conducted this research study (i.e., 2003-2005), the government of the province of Ontario had committed funding for improving facilities at colleges and universities ([http://www.edu.gov.on.ca/eng/policyfunding](http://www.edu.gov.on.ca/eng/policyfunding)). Some of this funding was applied to projects in 2003-2005, but some has continued into 2006 and will continue beyond. When discussions are taking place to determine the layout and technical arrangements in new classrooms and labs, it is useful, in the Information Age, to have some student input as to what circumstances of learning are most effective. In planning the topics for the survey, it was considered that classroom layouts and IT facilities would be a relevant topic touching on one or two questions in the
survey. Therefore, one of the rationales for this study is the usefulness of the information as it applies to planning new hybrid teaching classrooms (also referred to as electronic classrooms) in the new buildings being raised on the campuses of colleges and universities across Ontario in 2005-2006.

In some of the Ontario colleges the term “electronic classroom” has come to mean a classroom that has been fitted with a large overhead screen such that an Internet-connected computer, usually on a podium at the front, that can have the computer monitor’s image displayed on the large overhead screen. Principally, this classroom layout is used by professors who wish to show PowerPoint slides on the large screen or go live on the Internet and show some World Wide Web (WWW) content.

Aside from college and university administrators being interested in the study for their planning purposes, some textbook publishers are also enthusiastic to know the findings of this study. For instance, the custom publishing unit of Thomson Nelson serves to print books authored by professors who write their own work based on material published on websites or other formats. Murray Moman of Thomson Nelson mentioned to me on a number of occasions in 2005 that “the custom publishing branch of the major publishing houses is one of the fastest growing areas in textbook publishing” (personal communication, January 5, 2005), and that online content was an asset, since the material easily existed from which “custom pub” books could be produced. Moman reflected that research, such as this study, would be valuable to many people considering this method of publishing.
Scope and Limitations of the Study

While the focus of this study is on hybrid (blended) learning, the study explored primarily the students' and professors' perceptions related to the web based portion of the hybrid learning environment which consists of a combination of in-class attended instruction combined with course content online. The study did not specifically address the traditional classroom component of that environment. James Turk (2004), Executive Director of the Canadian Association of University Teachers, has suggested that “online materials work well when used in conjunction with more traditional teaching materials...students need some interaction with their instructors to remain interested in their course-load” (personal communication).

Teaching courses entirely online is growing in popularity for certain types of courses and programs, but (a) it is very challenging for some faculty members to be thrust into delivering a fully online course without considerable and intensive training and extra work on developing an appropriate curriculum, and (b) hybrid teaching employs the same technological advantages of the tools used in fully online teaching, but without the disadvantages of a physical disconnect between teacher and student.

Outline of the Remainder of the Document

In this chapter, I have provided the problem statement, the background, and the rationale of this study as well as the specific research questions that it addressed.

Chapter Two provides an analysis of the literature related to the focus of this study. It also deals with the challenging circumstances surrounding the literature review. In summary, I found both too much information and not enough information. There was
too much information related to teaching using the Internet, but too little discussing the rather new concept of hybrid teaching and the creation of enhanced Learning Objects.

Chapter Three discusses the research design, methodology, and procedures used to select participants and collect the data.

Chapter Four reports the finding and analysis of the quantitative and qualitative data provided by the students and faculty who participated in this study. The findings are also interpreted in light of the literature reviewed.

Chapter Five focuses on the implications of the findings of this study for the teaching practice of college and university professors who teach business and marketing subjects in a hybrid format.
CHAPTER TWO: LITERATURE REVIEW

My review of the literature was done from December 2002 to November 2004 with some additional searches conducted in January and February 2005. This timeframe seems consistent with the development of eLearning in postsecondary education in the new millennium. Although I searched many web based sources, such as AskERIC.org and Google Scholar as well as peer-reviewed journals produced by a number of Canadian universities, it was challenging to find a substantial amount of literature that addressed hybrid/blended teaching learning issues specifically. From my experience, there exists a gap in that literature related to my research questions. This study was meant to help address that gap and to add to our understanding of the relevant issues and the perceptions of a group of students and faculty with respect to elements inherent in a hybrid learning environment in postsecondary education.

Motivating and Engaging Students

The benefits of engaging students in the learning process may be greatly facilitated by the advent of the Internet and WWW technologies but the concept predates Tim Berners-Lee’s 1990 invention. Laurillard (1993) and Jonassen, Duffy, and Lowyck (1993) have been widely quoted for their constructivist position in which they advance that student learning is “constructed through the active participation of the learner in trying to arrive at and articulate their own personal understandings of new ideas and concepts” (¶ 4). MacGregor (as cited in Allen & Slutsky, 2003) commented that “students who participate in ongoing communication often feel a stronger sense of belonging to a group, as they are able to communicate more frequently and develop a sense of trust and rapport” (¶ 3).

Motivating students who have to work through online material is neither an old problem (Brown & Thompson, 1997) nor a recently solved problem (Latuszek, 2004). As
early as 1997, Brown and Thompson of Murdoch University in Western Australia were grappling with motivation challenges. Their 1997 paper titled “Course Design for the WWW – Keeping Online Students Onside” posed more questions than answers about motivating students.

In a Ph.D. dissertation comparing conventional teaching versus hybrid teaching of mathematics courses, Latuszek (2004) noted that students in hybrid situations need to have effective study and time management skills to keep pace with the learners in traditional settings. Personal capabilities in study and time management for students in hybrid learning are also emphasized in a study by Kinney and Robertson (2003).

The recent research of Latuszek (2004), the work of Kinney and Robertson (2003), the results of this survey in the spring of 2005, and my personal experiences, suggest that professors who are relying on students to absorb a significant amount of course content through online structures might consider how they can communicate the importance of good study habits combined with self-discipline. Perhaps some peer sharing of self discipline activities and methods might be constructive for fellow professors who use hybrid teaching methods.

Howland and Moore (2002) of the School of Information Science at the University of Missouri-Columbia have been studying students’ expectations as it leads to better techniques for motivating and engaging students. In their study about distance learners in Internet-based courses, Howland and Moore discovered that “students with negative attitudes seemed less able to understand the course content” (p. 1). Howland and Moore’s research also revealed that “students’ expectations were a determining influence in their online course experience” (p. 1).
Student expectations and a relationship with particular instructional technologies have been cited by a number of academics, such as Bures and Abrami at Concordia University and Amundsen at Simon Fraser University. Bures, Abrami, and Amundsen (2000) have been researching the relationship between student expectations and the belief that a particular technology will help them learn, as the key ingredient in determining whether students will like using online material. Bures et al. investigated why some university students appear motivated to learn via computer conferencing whereas others do not. These Canadian researchers concluded that the degree to which students are motivated depends on the degree to which they believe the form of their learning will indeed help them learn the course content. In essence, what Bures et al. have determined is that students will have enthusiasm for using the Internet and related technologies, like computer conferencing, in direct proportion to the perception that the technology helps them achieve competence in the skills they are studying to acquire.

The *International Electronic Journal for Leadership in Learning* (IEJLL) is a publication of the University of Calgary Press. Reid (2002) of the University of Ottawa asks in the IEJLL, "What changes will new information and communication technology make possible in education and how will teaching change in the future?" (¶ 2). Reid did a qualitative survey of teachers using the new [2002] technologies, and his narrative makes interesting reading. In Reid's explanation of the situation at one school, he says

The view from most teachers at this school was that information technology allowed teachers to be more creative in preparing material to help students learn. This idea that technology would help teachers be more creative is interesting
because some academics have claimed that the opposite would happen to teachers.

Reid (2002) also addresses the question of whether technology replaces teachers. Reid writes,

While teachers thought the role of the teacher would change, they did not believe they would be replaced by computers, as predicted by Kurzweil (1999). Technology was seen as something that enhances the teachers' ability to do the job they have always done, which is to help students learn. (¶ 4)

Reid's (2002) treatment of the question that technology might replace teachers was comforting since I have been saying for several years at conferences that “teachers will not be replaced by the Internet; they will be replaced by teachers using the Internet. Karsten (n.d.) noted that Clara Yu, vice president for languages and director of the language schools at Middlebury College, Vermont, is credited by a number of sources with saying that the teacher will not be replaced by technology, but teachers may be replaced by teachers who know how to use technology.

McFadden’s (1999) article, titled College Students' Use of the Internet establishes that the purpose of her study “was to determine the nature of Internet uses by students in a computer lab of a major state university” (¶ 3). Instead of discussing such use in a pedagogical way, McFadden's interest relates to identifying and discussing aspects of student interest in pornography and gambling sites. McFadden's article suggests that, if you have some appreciation for how much nonacademic time the students spend online, you might have a better understanding of the competitive environment within which professors' websites are competing for student attention. Such an understanding has implications for
my teaching website; namely, how I can make the site more interesting and exciting so that students will click around it longer and hopefully learn something.

According to McFadden (1999), Internet chat represented 6% of activity involving contacting sports-related sites 6%; contact with sexually explicit sites was low at 1%. This last point addresses the myth that some professors have that their students are wasting time surfing adult sites. McFadden’s interesting conclusion is encouraging for those who want to see students using IT resources for academic purposes. McFadden states:

If this study is representative of the college population, the overwhelming use of the Internet in an open computer lab conforms to university acceptable use policy. There is far less use of lab computers to contact pornographic sites than we have been led to believe. (¶ 10)

My experience at Ontario College has been that students are rarely, if ever, caught accessing porn sites in the lab, since they have to log on with their student ID and such traffic can be recorded, which causes students to be concerned that they may be in contravention of the Ontario College “Acceptable Use Guidelines.” McFadden’s (1999) study seems to suggest that, even if the pressure of such guidelines does not explicitly exist, students are not inclined to waste time visiting porn sites in school labs.

**Fully Online Classes**

If putting content online is valuable for teaching, then it begs the questions why even bother with hybrid teaching. Instead one could put 100% of the content online for every type of course. For a number of educators fully online classes are good for some select topics and specific programs, but they are not, generally speaking, the preferred mode of learning for most students (Warner, Christie, & Choy, 1998). Pure online courses
are usually used only when other more conventional methods are unavailable by virtue of distance or cost or student time considerations (National Centre for Vocational Education Research [NCVER], 2002).

“Students prefer hybrid approaches which mix modes of delivery, resources and technologies to achieve maximum flexibility and interaction with both teaching staff and their fellow students. In this way the learning processes accommodate a range of preferred learning styles” (NCVER, 2002, p. 2).

**Constructivist Learning – Learning from Peers**

Wilson and Lowry’s (2000) article “Constructivist Learning on the Web” is particularly relevant to teachers of hybrid e-commerce and marketing courses like the course I was teaching during the time of this study. Wilson and Lowry caution that “Web-based learning must be evaluated in the context of its use” (p. 4). For courses like my marketing courses, this means that the constructivist learning process experienced by the students is in the context of their being able to share what they learn with other students in the process of creating a real working web page that could actually be used commercially.

There are also examples of the additional benefits of such constructivist activities being shared, both before the widespread use of Internet technologies (Savery & Duffy, 1996) and after the web became commonly used by teachers in teaching at the college and university levels (Lainema & Makkonen, 2003).

Masters, Madhyastha, and Shakouri (2003) at the University of California developed a structure called ExplaNet (http://www.collage.soe.ucsc.edu/explanation.html) which allowed students to post online answers to professors’ questions, and these students’ answers could be further enriched by contributions of other students or edited to provide
corrections. The concept on which Masters et al. built ExplaNet is known as a recommender system. Recommender systems have been popular with vendors of products and services such as Amazon.com. Recommender systems for online book vendors solicit customers to recommend other books in the same category.

**Privacy Issues**

Kettel, Brooks, and Greer (2004) of the University of Saskatchewan addressed the question of students sharing their online creations in their paper presented at a conference in New Brunswick. Their paper and presentation dealt with the consequence of Computer Supported Collaborative Learning (CSCLs) and the heightened concerns of privacy issues. The authors concluded that,

CSCL environments typically encourage learners to share personal information with one another to encourage group building, self-reflection, social navigation and finding an appropriate helper for students having problems. By allowing learners to see one another’s activities online, awareness is promoted within the learning community. This awareness can serve as a motivator for learners, making them feel less isolated and more a part of the learning community, and encouraging them to participate actively within groups helping to fuel the learning process. (p. 1)

Kettel et al. (2004) conducted a study in which they asked respondents to indicate in what categories they would be willing to share information and allow their identity to be revealed. These researchers found that it is not the personal information as such that is the issue, but rather the degree to which the respondents had control over that information. The findings of Kettel et al. suggest a need to explore technical and non-technical methods that
give students more direct control over the amount of their information they reveal and to whom.

Kerr and Slepkov (2004) wrote a 14-page article titled *Integrating Technology into Teacher Preparation and Practice: A Two-way Mentoring Model*. There were many things covered by Kerr and Slepkov that had indirect application to the understandings being dealt with in this thesis. Unfortunately, the subjects of Kerr and Slepkov were teachers of grade school students and not professors of college and university students. Kerr and Slepkov note a 1999 report which found that “the single greatest deterrent to this lack of computer use is teacher attitude and/or lack of training” (p. 1684). My personal experience supports extending that statement to be also current in 2006. A significant number of my college and university colleagues at Seneca College and the University of Toronto are less familiar with making web pages and posting content to the Internet than their students in marketing and business courses.

One of the cautions that Kerr and Slepkov (2004) espouse is the point that “technology literacy does not easily translate into an ability to know when to use that technology appropriately” (p. 1684) which is a more erudite way of saying that “just because you can do it, doesn’t mean you should.”

So, keeping in mind the cautions of Kerr and Slepkov (2004), I wanted to know if you can post the results online, should you? Would it be the case that some students do not like their work to be seen by other students? In an age when privacy issues are forefront in business and government, this becomes an aspect of the course curriculum we need to determine, and the best way to deal with part of this issue is to ask the students for their opinion (Dunn, 1997; Randolph, Murphy, & Ruch, 2002).
Section 1.1: Introduction

This section aims to introduce the fundamental concepts and principles that underlie the study of...
Internet Connectivity and Classroom Arrangements

Australian professors, Birden and Page (2005), addressed costs associated with upgraded IT when they discussed teaching health courses using videoconferencing. Birden and Page explained that the experiences of medical instructors led them to conclude that “for an optimal learning experience, it is essential to purchase the highest quality equipment that can be afforded” in order to be able to communicate effectively between students and instructors (p. 2). Birden and Page discovered that Australia, like most OECD countries, has an inequitable distribution of Internet connectivity speeds among urban areas and between urban areas and rural areas. The variant connectivity speeds for access to the Web means that some students will be downloading web based course content at a slow speed compared to the speed at which it may have been intended. If the original audio or video clip was not recorded on equipment of the highest quality available, it may cause problems for many students who are trying to interface with the files.

Zandvliet and Buker (2003) of Simon Fraser University are on the 2003 list of articles in the IEJLL. They wrote about the use of the Internet in classrooms in British Columbia. This paper discussed the administration of a student questionnaire addressing student satisfaction with using Internet enabled classrooms and feedback from the students as to what features of these sites are useful in their learning.

The abstract of this paper by Zandvliet and Buker (2003) explains that it is a report on a study of classroom environments in emerging Internet classrooms in British Columbia. The study involved an evaluation of the physical and psychosocial learning environments in these settings.
The study was both qualitative and quantitative and included questionnaires answered by students in the program. The reason this study may be useful to readers of this literature review is that it concludes with recommendations concerning what may or may not be working for teachers in the classrooms in British Columbia using the new technologies. "The physical environment of the classroom must be compatible with the technology being used for teaching and learning" (¶ 14) was the result of research by Zandvliet and Buker (2003). Using the responses from their questionnaires, Zandvliet and Buker recounted that "students perceived deficiencies in the visual environment of their classrooms, which indicated that there might be issues with inadequate lighting or perhaps reflective glare when they are working with the computers" (¶ 15).

**Gender Issues**

A number of academics have studied gender differences in education. In recent years [2003 – 2005] there have been studies about how gender may have an influence on IT-related education (Miller & Lu, 2003; Roy, Taylor, & Chi, 2003). While some interpretations suggest that men and women use the Internet for different personal purposes, I found nothing to strongly suggest that differences in gender equated to differences in capability, though some researchers have cited some particular situations where women perform better than men for some Internet-related tasks in a course. Duvall and Schwartz (2000) of Mercer University in Atlanta studied differences in academic performance between distance learners and their on-campus counterparts and found that in some inconsequential circumstances female students accomplished tasks slightly better than male students.
Roy and Chi (2003) of the University of Pittsburgh discovered in their study that “boys tended to employ a different search pattern from girls” (p. 335), but there was nothing to suggest that the search pattern had the consequence of uncovering unsuitable results.

A Discussion of Learning Objects

There were a number of descriptions, definitions, and explanations of hybrid teaching by 2005, and the subject of Learning Objects was similarly challenging. “The proliferation of definitions for the term Learning Object makes communication confusing and difficult” (Wiley, 2001, p. 3). The Learning Object-type teaching structures that I used are enhanced by being online, hyperlinked, also search engine optimized (SEO), and, additionally, they have input from the students. Learning Objects, circa 2001 and 2002, were originally created as units of teaching material burned onto CDs and DVDs for use by students who had access to a computer (Boyle, 2001; Wiley, 2001). The material in these early Learning Objects did not necessarily have an online component. Secondly, many Learning Objects did not include ongoing updates and input from the students in the course. Tom Boyle (2001) of London Metropolitan University says “Principles imply that learning object[s] should be as simple as possible. This greatly aids recombination and reuse. However, such simple objects may well appear pedagogically unexciting” (¶ 20).

Karen Swan (1994) argues that “Multimedia resources available for the Web certainly enable the creation of rich, alternative ways of viewing and traversing a given learning topic. How can the use of these powerful techniques be squared with ‘simple’ learning objects?” (¶ 21). Swan’s 1994 challenge to the use of the term Learning Objects as
being too "simple" is addressed by Boyle (2001) who suggests adding the prefix "compound," as in "Compounded Learning Objects."

What is the proper term for such Learning Object-type structures that are enhanced such that they are available online, hyperlinked to each other, imbedded with image and audio content beyond simple text, and built with student input? Are they compounded Learning Objects? Are they enhanced Learning Objects? The answer is not easily available.

The success of any study rests on the ability to effectively communicate to the reader the questions that one is investigating, what steps are sought to answer those questions, and the consequent findings. An integral part of those steps, in this study, is explaining the terms and vocabulary relevant to the topics. Normally, it is possible to have an introduction that notes the relevant terms. In the case of this study, there are some taxonomic and lexical challenges that result from an inconsistent use of terms for some fairly new concepts and online learning structures.

In 2003, the term Learning Objects came to be used among educators to describe educational teaching structures that were being created with the new abilities afforded by multimedia computers. These structures were being used to enhance understanding of a specific topic in a course.

Some of the early definitions for Learning Objects were quite broad. In Boyle’s (2002) paper titled “Design principles for authoring dynamic reusable learning objects,” he cited the definition used by the Institute of Electrical and Electronics Engineers (IEEE). The IEEE, as quoted by Boyle, said simply that “a learning object is defined as any entity, digital or non-digital, that may be used for learning, education or training” (¶ 3). Susan
Learney works in the e Learning Centre of Seneca College helping faculty develop complex IT supported learning tools for online courses, hybrid courses, and traditional courses. Learney is involved in Learning Objects in many ways and advises on how to build Learning Objects. Learney said to me in 2005, that the early broad definitions of Learning Objects, such as that by the IEEE, meant even a map hanging on the classroom wall could be identified with that term.

Conclusion

In Chapter Two I have reviewed the relevant literature and identified that there exists a gap in the literature with respect to scholarly writings and research studies related specifically to hybrid/blended teaching and learning. I have discussed the literature reviewed according to the themes that arose out of the literature.

In the next chapter, I describe the research design, methodology, and procedures following in this research study.
CHAPTER THREE: METHODOLOGY AND PROCEDURES

This was an exploratory, descriptive research study that examined the perceptions of 172 college and university students and 5 professors regarding specific characteristics and elements related to hybrid (currently [2006] also referred to as “blended,” or “mixed mode”) teaching and learning, and innovative web based structures, such as enriched Learning Objects, with accompanying audio files, which have been used to enhance student involvement in a hybrid learning environment. Enhancing student involvement means increasing student participation in the course lectures and allowing for student participation in the creation of some of the web based teaching materials.

The goal of this study was to look at the perceptions of some students and faculty who have experience with hybrid teaching and learning, regarding selected characteristics and elements that affect the efficacy of hybrid teaching strategies, and, by extension, ascertain if it is worthwhile for professors to build websites and develop hybrid teaching to enhance effective student learning. I was very aware that the students in college and university in 2005 had been online and used the Internet for 3, 4, or even 5 years going back to the beginning of their high school years. The question I asked myself was: Do these students of 2005 have an expectation that, since they use the Internet in their daily life for consuming products and services, faculty will use the Internet in an enriched way to help them learn the course materials? If so, what are the perceptions and preferences of these students regarding the characteristics and elements related to hybrid learning environments?
Research Design

At the time I conducted the review of the literature for this study, I found there was a gap in the literature with respect to scholarly writing and research studies that addressed attributes and challenges specifically related to hybrid teaching. There was considerable discussion of the use of technology in education as well as fully on-line course delivery, but very little that addressed specifically the hybrid approach. For this reason, an exploratory, descriptive study was appropriate in that I sought to increase our understanding of this education method.

McMillan & Schumacher (1997) state that,

action research involves teachers and/or principals using research methods to study specific school or classroom problems. A teacher conducts the study or has an important role in the research process. Because the focus is on a solution to a local problem in a local site, rigorous research control is not essential. (p. 23)

Since the study I was doing involved the survey of students engaged in hybrid classes as I was teaching them, I was able to address problems that had immediate applicability to the local contexts in which I was teaching. During the course of the semester I implemented a number of “solutions” suggested by the students as part of this study.

Pilot Study

The web based survey questionnaire, which I developed, was pilot tested for content and face validity with several colleagues familiar with hybrid teaching. The pilot testing of the survey questionnaire ascertained that the quantitative questions would yield sufficient data to answer the research questions that drove this study; however, the
quantitative questions, as tested, were not adequate in explaining the reasons why some answers were chosen. I deemed it important to determine why students would respond to some of the quantitative questions as they would. For this reason, the online questionnaire was revised so that students could type in their opinions and comments and thereby create a body of qualitative data to contribute to the overall understanding of the participants’ responses.

Selection of Site and Participants

This study was conducted at two postsecondary institutions in which I was teaching marketing and e-commerce courses during the January to April 2005 semester: Ontario College and Central University (pseudonyms). Both Ontario College and Central University are located in the same large and multiculturally diverse urban centre in southern Ontario. They both attract students who represent a diverse mix of cultures and languages.

The study participants were samples of convenience. The online survey was conducted with my students who were in 1st and 4th semester marketing courses at Ontario College and my 3rd and 4th year students in e-commerce and international business at the Central University during the January to April 2005 semester. The 1st semester marketing students at Ontario College were taking an “Introduction to Marketing” course. The 4th semester students at Ontario College were taking an e-commerce course that required them to build a working web site online. The Central University participants were 3rd and 4th year students in an international business management course and 3rd year students in e-commerce. All students enrolled in these courses were invited to participate. The response rate was very high: 85% (n=172).
During the time the survey was conducted, a number of students told me verbally that they were pleased to be involved in the survey. A number of students also said that they liked the website resources and were pleased to have an opportunity to provide some structured feedback.

The 5 professors who participated in this study were colleagues whom I selected based on their experience using a website for teaching and their personal abilities with creating web based content for their courses. All of the 5 professors had a website, for teaching, which they had used with their students for at least 4 years.

Throughout the process of the survey, I also reflected on my experiences and on the implications of the findings to my own hybrid teaching/learning context.

**Instrumentation**

In order to explore if the existing course content posted online was useful, arranged, indexed, and linked such that it was pedagogically sound, students in my classes were asked, in an online multiple-choice questionnaire, to comment on specific features of the site content.

Based on some discussions in the literature, I wondered if gender differences might be a factor to be considered in participant responses as well as web based academic content. There have been a number of studies in science and popular culture, for several decades now, discussing how men and women accomplish tasks differently, not better or worse, just differently; and I realized that gender should considered as a variable in this study survey. Regardless of what science and popular culture think about male and female differences in general, our concern is with what college and university students think. Therefore it was useful to learn from the students' perspective (a) if, in their
opinion, there was a strong male/female difference in Internet use, and (b) did they think the gender difference might suggest that professors have to change their academic content based on the ratio of male or female students in a class?

Students’ perceptions of their own capabilities are important in the context of how professors set degrees of difficulty for various tasks in a curriculum. In conducting this survey, I considered it useful to know if students felt they were good, great, or fantastic at doing various tasks online and the specific tasks at which they felt very adept. The answers to these questions can help the developer of a hybrid course plan more precisely the weighting of certain online-based tasks. For example, if 80% of student respondents said they found it easy to send and receive email, but only 60% of respondents found it easy to send and receive email with attached files, this might affect how the professor would distribute course content via email.

During the time period in which this research was being conducted, 2003-2005, the government of the province of Ontario spent millions on education in the category of facilities upgrades. As recent as July 21, 2005, several newspaper headlines read “McGuinty Government Fixing Schools, Building Potential” in reference to the announcement that $135 million would be spent on repairs and construction in the summer of 2005.

As a consequence of new funding for labs and classrooms in 2003-2005, several Ontario colleges and universities built new complexes, particularly for programs in the subjects of business and marketing. During the time I have been teaching at Ontario and Central University, I saw Ontario College build an impressive new wing at its sprawling main campus in 2003, and in late 2004 new buildings were constructed at Central
University. When discussions were taking place during the construction planning phase to determine the layout and technical arrangements in new classrooms and labs, it would be useful to have student input as to what environmental features would be most conducive for learning. For this reason, I also included in the study queries about preferences for certain arrangements in the classrooms, since the answers can have implications for planning classroom space and information technology (IT) layouts in new facilities.

Students in the new millennium at college and university come from an educational heritage in the late 1990s that saw increased collaborative work in the classroom learning environment. More and more situations arise in learning at the college and university level where students are able to see the ongoing work of their classmates as part of their work in groups. Curtis and Lawson (2001) of Flinders University in South Australia discussed collaborative online learning in the *Journal of Asynchronous Learning Networks* and suggested that collaborative work was facilitated well by the use of technologies and by students enjoyed using various methods to create and share course-related information.

In the particular marketing course that I teach at Ontario College, students are required to complete an online assignment that requires designing a realistic Web storefront and posting the pages online. When posted online, these pages can then be validated as being “real working web pages,” and, because they are online, they can also be seen by other members of the class. I believed from my past experiences that being able to see other students’ web pages might be useful in the learning process. One of the questions I included in this survey was a query about whether or not the students liked
being able to see other students' material online and, by corollary, whether they were comfortable with their own work being thus displayed.

In the course of teaching various marketing and e-commerce courses at Ontario College and Central University, I have encouraged students to earn class contribution marks. Contribution marks are earned by students who search the Web and find articles and sites relevant to the topics in the upcoming classes. Upon finding relevant online content, students are encouraged to send me an email in which they describe and summarize the content they found. After I have assessed the value of the students' input, the material they have found may be added to my online course notes, and those students who originally found the material will be credited with the find. Sometimes this accreditation takes the form of a byline with the students' name; other times the students will submit their photos and a "head shot" will be posted on the site along with their names (first name and initial of last name) and some brief comments that they have provided. Student contributions, photos, and names are posted online only if written consent to do so is received from the students.

Throughout 2003 and 2004, an increasing number of students expressed interested in contributing to building the online course notes on my course site, and by mid-2005 more than 70 students had become involved. Some students contributed to the online course material before it was presented in class; some students made their contributions after my lectures had taken place.

This process of building the online course material and creating "enhanced class participation" has been working well for the past 2 years (2003 – 2005), but I have not surveyed the students in a formal way to obtain concrete validation to ascertain if the
students, as a whole, like this approach and find it useful for their learning. For this reason, I included a question in the survey that asked for the students’ responses to this opportunity, if they would use this opportunity to earn class contribution marks, and if they felt comfortable with being identified as contributors.

In the early years of the millennium many advances have been made to the format of mainstream content, and one of the most obvious is the many files of audio content on websites, as more and more speakers are sold with personal computers (PCs). Professors are also taking advantage of this opportunity by beginning to post audio and video files on their web pages as well as text and image content. Professors teaching an IT course at the Virginia Polytechnic Institute and State University experienced strong positive results as a consequence of using small video files on their course websites. When they questioned students who accessed the files, responses were enthusiastic for this method of augmenting the text content (Midkiff & DaSilva, 2000).

Following the example of Timothy Pychyl of Carleton University (http://www.carleton.ca/psychology/directory/pychyl_t.html) and the example of Michael O’Neill (http://www.mhoneill.com/) of Seneca College, I began using audio files on my site in mid-2004. Verbal feedback from my students in mid-2004 was positive, but it remained to be seen whether this was a novelty or if the students really did have an interest in learning some of the course material through audio clips instead of just text and images. For this reason some of the questions in the survey for this study explored students’ listening habits while online and their interest level in the opportunity to contribute content to the course website verbally through audio files.
The survey instrument that I developed to answer the research questions was an online multiple choice, anonymous response questionnaire (Appendix A). The questionnaire consisted of 20 multiple-choice questions and included 3 sub-questions in which a typed response was required.

I created the online survey questionnaire that was used to survey the student participants based on my review of the literature and on my past experience in teaching in a hybrid environment for a number of years as described above. Building on the students’ responses, I then created the guide (Appendix B) that I used to interview the 5 professors. These tools were pilot tested with several colleagues and revised where appropriate.

After examining the existing literature on hybrid teaching, and taking into consideration the dynamics of the subjects being studied by the prospective student participants, I decided that, in order to gain a fuller understanding in this exploratory study, the research should include both quantitative and qualitative data. Quantitative questions would be useful for questions, such as ascertaining the frequency of accessing the web based course material, and indicating how often they used the online material, or what they used online. Quantitative questions would also be most appropriate for basic information on the student participants, such as year of study, full-time or part-time status, Internet access connectivity speed, and other such profile questions.

Written comments and verbal discussions generate qualitative data, which, although more subjective than quantitative data, enable the researcher to probe underlying reasons and gain a deeper understanding of the phenomena studies.
Data Collection and Recording

The student data collected for this study were digital in the form of an online survey questionnaire and .php files. These .php files indicate answers to a series of questions but do not link these to the individual respondent. The qualitative data generated in the interviews of the 5 faculty were recorded in my field notes.

Data Processing and Analysis

The quantitative responses were tabulated as frequencies and percentage of responses received to the survey questions and options selected. The qualitative data generated by the students’ written comments on the survey questionnaire and the responses of the 5 professors recorded in my field notes were subjected to content analysis to identify the main themes that emerged from the data.

Methodological Assumptions

Since the students were assured in the Letter of Information and the Informed Consent Form that their responses were non-identifiable and that participation in the survey was entirely voluntary and would not affect their academic standing in the course where the study was conducted or in the future, I assume that they responded as honestly as they could. Also, as the survey was conducted during the semester and in classes that were hybrid, I also assumed that they responded in a way that accurately depicted their perceptions of that experience.

Since every professor that I interviewed as part of this study had at least 4 years of experience with developing and using Internet based learning materials with their students, I assumed that they had a fairly accurate understanding of what that experience was like for them and their students. Furthermore, as I am not now, and was not at that
time, working with any of the 5 professors, and as they had nothing to gain or lose, I assumed that their responses reflected their perceptions accurately.

**Limitations**

Given that this study consists of a sample of convenience from only two post-secondary contexts, the findings of this study cannot be generalized beyond the context of this study. However, the findings are valuable in that they may contribute to our understanding of an area where I found there was a gap in the research and scholarly literature.

**Establishing Credibility**

Exploring the research questions from two perspectives – those of the students and those of the professors who had experienced the same phenomenon, which is hybrid teaching and learning – contributes to the credibility of the data. Furthermore, by including my own experiences and reflections in the use of hybrid teaching for several years, I provide a triangulated view that also contributes to the credibility of the findings and interpretations.

Both Ontario College and Central University attract students who represent a very large and diverse mix of cultures and languages. Oubenaissa, Giardina, and Bhattachary (2002) warned that the ethical implications and considerations affecting the drafting of survey questions are challenging in any qualitative or quantitative study in a globalized teaching environment in a major urban center in the new millennium, as is the context of this study. I was very aware of and made a conscious effort to ensure that none of the survey or interview questions had any subjective qualities that would be vulnerable to any gender or racial bias.
Student participants in the survey were informed that they could submit by e-mail a request to see the survey findings. None of the students requested the feedback.

**Ethical Considerations**

In the case of this study before I began any research, I was required to and did obtain the written approval of the Research Ethics Boards of the three educational institutions that were involved in this study: Brock University (Appendix C), Ontario College, and Central University. There were no aspects of the research procedures used that created any concerns for the potential for physical or emotional risk to either the student or faculty participants.

In some surveys where the responses are written on paper, there are concerns about whether these pages might be seen by unauthorized persons or the information on the pages might be revealed in a way that raises issues about privacy considerations. There were no concerns about the security of individual answers in the online survey used in this study since individual answers were not retained, only the cumulative totals. Some surveys have to deal with the security considerations regarding individual survey responses but, in my study, no individual responses were tabulated which are attributable to any particular student respondent.

Field notes that I made during my discussions with the faculty were kept in a secure place accessible only to me and my thesis advisor.

All data collected will be kept secure and destroyed after the period of 5 years as required.
The Letter of Information was a web page and the information was provided equally to the student participants at both institutions, Ontario College and Central University.

Potential participants were informed by the Letter of Information and the Informed Consent Form that participation in the study was strictly voluntary and that participants were free to not answer questions they did not wish to answer or withdraw from the study at any time without explanation or penalty. Furthermore, students were assured that lack of participation would not affect their academic standing in the course in which they were currently enrolled or in future courses. Although the responses to the survey questionnaire were anonymous and students were asked to not identify themselves, all participants were assured that no individual participant would be identifiable in any reporting or publication of the findings. Only those who signed the informed consent form were included in the study. In order to ensure confidentiality, pseudonyms have been used throughout this report for the names of the faculty and of the institutions where this study took place.

Restatement of the Area of Study

This study sought to explore the perceptions of students and faculty regarding selected characteristics and elements that affect the efficacy of hybrid teaching strategies in post-secondary education. The research questions that were the focus of this study were:

1. What factors influence the students’ ability to access and learn from web based course content?
2. How likely are the students to use selected elements of internet based curriculum for learning academic content?

3. What is the preferred physical environment to facilitate learning in a hybrid environment?

4. How effective are selected teaching/learning strategies in a hybrid environment?

**Summary**

In this chapter the research design, methodology, and procedures used in this study as well as the research questions the study sought to address were described.

The findings of the study are presented in Chapter Four and analyzed and interpreted in light of the literature.
CHAPTER FOUR: PRESENTATION OF FINDINGS

This study explored the perceptions of some students and some faculty regarding selected characteristics and elements that affect the efficacy of hybrid teaching strategies in post-secondary education. It was an exploratory descriptive study based on both quantitative and qualitative data collected from a sample of convenience consisting of 172 students and 5 university faculty who had at least 4 years of experience with hybrid teaching and learning.

The research questions that were the focus of this study were:

1. What factors influence the students’ ability to access and learn from web based course content?

2. How likely are the students to use selected elements of internet based curriculum for learning academic content?

3. What is the preferred physical environment to facilitate learning in a hybrid environment?

4. How effective are selected teaching/learning strategies in a hybrid environment?

Profile of Student Participants

The students who participated in this study were all enrolled in e-commerce or marketing classes that I taught between January and April, 2005 at Ontario College and at Central University (pseudonyms), both located in a large multiculturally diverse urban centre in the province of Ontario. Of the 202 students who were invited to participate in the study, 172 (85%) did so. The students completed an on-line survey questionnaire in that same semester, January to April 2005.
Of the 172 students who participated, 137 (79.7%) were college students and only 35 (20.3%) were from the university. One hundred and sixty-seven (97%) of all the student participants were enrolled in full-time studies and only 5 (3%) were in part-time studies. Of the college students who participated in this survey most (n=62; 36%) were in the 4th semester of a marketing program, while 49 (28%) were in the 6th semester. The majority of the respondents were students in a 4th semester college e-commerce course that I taught at Ontario College. This is a course specifically oriented to teaching students how to build a working website. Some students take this course in 4th semester, but because of some curriculum changes at Ontario College in 2004 and 2005, there were a number of 5th and 6th semester students in the course at the time this study was conducted.

Almost all (n=43; 20%) of the university students were full-time, 3rd or 4th year undergraduates. Table 1 depicts the demographics of student participants.

The proportion of respondents based on semester/year and college/university is consistent with the proportionate population of the students that I had in my classes at the time that the survey was conducted in the spring of 2005.

An interesting observation about the university respondents is the actual year in which they stated they were attending. Both of the university courses that I taught in the January to April 2005 term were listed in the university calendar as 3rd year courses, yet 20 of the 35 respondents indicated they were in 4th year.
Table 1

Profile of Student Participants

<table>
<thead>
<tr>
<th>Institution</th>
<th>Semester</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>College</td>
<td>17</td>
<td>10</td>
<td>4</td>
<td>26</td>
<td>1</td>
<td>1</td>
<td>62</td>
<td>36</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>University</td>
<td>0</td>
</tr>
<tr>
<td>Total Number of Participants</td>
<td></td>
</tr>
</tbody>
</table>

Note. n=172
Profile of Faculty Participants

All 5 of the professors who I invited to participate in this study did so. These professors were selected based on their experience using a website for teaching and their personal abilities with creating web based content for their courses. All of the 5 professors had a website, for teaching, which they had used with their students for at least 4 years.

Throughout this report I use pseudonyms for the names of these faculty participants to ensure confidentiality. Sandra teaches effective business presentations, career launching, portfolio development, and Internet subjects at Ontario College and at Central University. John teaches in the Faculty of Education at a small university in a mid-sized urban centre in southern Ontario. Robert teaches e-commerce and marketing at Ontario College. Stephen teaches psychology at a mid-sized university in a large urban centre in central Ontario. Bert teaches business and marketing at Ontario College.

As both Ontario College and Central University are located in a very multiculturaly diverse city and have a large number of students who are not native speakers of English, and since the course content on the websites used for teaching in these classes is in English, I thought that language consideration might possibly affect participation characteristics, such as frequency of access and navigation of the site. By addressing the ESL issue at the beginning of the survey, it was also possible to alert readers should they have any questions about whether the respondents understood the survey questions and whether they understood the course content. Since 95% (n=168) of respondents indicated that they either “understand 100% of all written material” or “understand most of the written material,” and only one student indicated that he/she had
“some difficulty understanding most of the written material,” it is reasonable to assume that English language comprehension was not a problem in how participants responded to the survey questions, nor was it a barrier to learning in a hybrid environment for most of the respondents. Table 2 illustrates these findings.

**Research Question #1: What Factors Influence the Students’ Ability to Access and Learn from Web based Course Content?**

The data to answer this question were derived from participants’ responses to the survey questionnaire (Appendix A) questions 4, 5, 6, 7, and 8.

**Gender Differences**

Question 4 of the survey asked: “In your opinion, do you think there is a strong male/female difference in Internet use? More than half (n=109; 63%) of the respondents stated there was no difference in how males and females used the Internet. However, slightly more than one third (n=63; 37%) stated they thought there were gender related difference in Internet use.

In recent years [2003 – 2005] there have been studies about how gender may have an influence on IT-related education (Miller & Lu, 2003; Roy et al., 2003).

While some studies suggested that men and women use the Internet for different personal purposes, I found no studies that reported that differences in gender equated to differences in Internet capability or use, although some researchers have cited specific situations where women performed better than men for some Internet related tasks in a
Table 2

*Students' Self Reports on English Comprehension of Course Content on the Websites*

<table>
<thead>
<tr>
<th>English comprehension</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can understand 100% of all the written material on the academic web sites used for teaching</td>
<td>125</td>
<td>72.7</td>
</tr>
<tr>
<td>I can understand most of the written material on the academic web sites used for teaching</td>
<td>43</td>
<td>25.0</td>
</tr>
<tr>
<td>I can understand the written material on the academic websites used for teaching if I have access to a dictionary</td>
<td>3</td>
<td>1.7</td>
</tr>
<tr>
<td>I have some difficulty understanding most of the written material</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>TOTAL</td>
<td>172</td>
<td>100</td>
</tr>
</tbody>
</table>

*Note. n=172*
course. For instance, Duvall and Schwartz (2000) studied differences in academic performance between distance learners and their on-campus counterparts and found that in some inconsequential circumstances female students accomplished tasks slightly more effectively than male students. While Roy and Chi (2003) discovered in their study that “boys tended to employ a different search pattern from girls” (p. 335), there was nothing to suggest that the search pattern affected the quality of what was found. None of the studies that I found in the literature, which studied gender differences in Internet-related education, addressed capabilities related to gender. In my study more than two thirds of the students felt there are no major differences in how men and women use the Internet.

Survey question 5 probed the gender issue further by asking students who had indicated that they thought there were gender-related differences to indicate if they agreed that “professors have to change the academic content of a teaching website based on the ratio of male and female students in a class.” Interestingly, although only 63 students initially responded that they thought there were differences, all 172 students responded to this question. Almost three quarters of the student respondents (n=125; 73%) stated they did not think that the academic content on a teaching website should be based on the ratio of male and female students in the class. Only 47 students (27%) stated that web based course content should reflect gender differences. Figure 1 depicts these findings.

This research study was primarily concerned with investigating the attractiveness and usefulness of a hybrid teaching situation that uses Learning Object-type structures for disseminating the course content and stimulating student participation. If students thought
Students' perceptions of whether the teaching of web based content should reflect gender differences.

Note. \( n=172 \)
there were major differences between the genders and that the professors should change the content to fit gender differences, then that would be an indication for the need for creating different types of learning structures to fit these perceived differences in learning. However, the survey responses indicate that, in the opinion of most of the students, there is no need to change the academic content based on the ratio of male to female students in the class.

*Internet Access*

Students' ease in accessing to Internet-based course materials is a major concern in hybrid teaching. For this reason, survey question 6 sought to identify how the respondents accessed these materials. Most \( n=123 \); 72% of the students reported that they accessed the Internet-based course content both from school labs and from home; 14% \( n=24 \) stated they accessed the materials mainly from home and 11% \( n=19 \) used a notebook to access the web based course content. Interestingly, none of the students reported bringing their notebooks to school; this may be because of their concern that notebooks are vulnerable to damage or loss. Table 3 illustrates these findings.

Over the years (2000-2005) the students in my classes have told me that they prefer to do some Internet-related work at school rather than at home because at school, in the opinion of the students, the access speed is sometimes faster which allows for quicker download times and faster viewing of pages.

In the context of the many enriched features of the website that I use in teaching these classes (audio, video, and enhanced images), it may well be that accessing the site at home might be slower than accessing this web based course content at school. If my
Table 3

*Students’ Method of Accessing Internet-Based Course Curriculum*

<table>
<thead>
<tr>
<th>Method of Accessing the Internet</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>School labs and home</td>
<td>123</td>
<td>72</td>
</tr>
<tr>
<td>Home</td>
<td>24</td>
<td>14</td>
</tr>
<tr>
<td>School labs and home and notebook brought to school</td>
<td>19</td>
<td>11</td>
</tr>
<tr>
<td>School labs</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Notebook brought to school</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>172</td>
<td>100</td>
</tr>
</tbody>
</table>

*Note. n=172*
students are spending a large amount of time accessing the website from home, where
speeds might be slower, then this has implications for how much enrichment (audio and
video clips) might be put on the site in order to make download speeds reasonable so that
the students will actually access the Internet-based course content. White (2003) points to
the need for broadband access in order for learning objects to be useful in post-secondary
teaching: “Online educational content today is being developed as small, digital, modular
packages known as learning objects. Learning objects require broadband access to the
Internet because schools and universities have large numbers of users to use these
learning objects” (p. 21).

*Students' Expectations and Learning Preferences*

In exploring the effectiveness of Internet-based course content that is integral to
teaching and learning in a hybrid environment, it seemed reasonable to me to first
ascertain if the students, in fact, liked using the Internet. In their study of the expectations
of distance learners in Internet-based courses, Howland and Moore (2002) discovered
that “students with negative attitudes seemed less able to understand the course content”
(p. 1). Howland and Moore’s research also revealed that “students' expectations were a
determining influence in their online course experience” (p. 1).

Bures et al. (2000) have been researching the relationship between student
expectations and the belief that a particular technology will help them learn, as the key
ingredient in determining whether students will like using online material. Bures et al.
investigated why some university students appeared motivated to learn through computer
conferencing whereas others did not. These researchers concluded that the degree to
which students are motivated depends on the degree to which they believe the form of
their learning will indeed help them learn the course content. In essence, what Bures et al. have determined is that students will have enthusiasm for using the Internet and related technologies, like computer conferencing, in direct relationship to their perception that the technology helps them achieve competence in the skills they are studying to acquire.

The survey questionnaire asked not only how the students accessed Internet based content but also how much they “liked” using the Internet (Survey Question 7). Ninety-five percent of the students in this survey responded that they either loved \( (n=96; 56\%) \) or liked \( (n=67; 39\%) \) using the Internet, which bodes well for expecting a high degree of enthusiasm and student participation in a hybrid learning environment. However, 9 students (5%) thought using the Internet is “OK, but not fantastic.” And, one student chose “I don't like using the Internet, I only do it when I have to,” but none selected “I extremely dislike using the Internet.”

Based on the research of Bures et al. (2000), one might try to counter negative perceptions of using the Internet with some tutorial classes at the beginning of the term in order to assist students who find some tasks (such as finding information through search engines) challenging or difficult. Secondly, persons teaching classes that might require a high degree of student enthusiasm should consider making more direct efforts to explain how participating in a hybrid class can be of benefit so that all learners can address the tasks of the course with the energy and diligence necessary for accomplishing the objectives.

Internet Savvy

Question 8 of the survey questionnaire asked the students to indicate how good they were in using various Internet functions. Students were asked to identify as many
options as applied. Question 8 was designed to reveal what specific areas of Internet-related technology the students are most familiar with and in what tasks they feel they have the most competence. Teaching e-commerce courses at the college and university level in the middle years of the new millennium's first decade affords the opportunity to use some fairly interesting web based applications, and the information from responses to question 8 can be very helpful in the planning of what new and interesting things can be tried.

In my experience, and that of several colleagues, a common complaint that students express to faculty is the challenge of finding information using various search engines. However, this does not appear to be a challenge for the students who responded to this survey. Eighty-two percent ($n=141$) of student respondents indicated that they find it relatively easy to find what they want using a search engine. Furthermore, the same number ($n=141; \; 82\%$) reported that they were "online a lot" to chat and surf the net, for instance.

Eighty-one percent ($n=140$) of respondents to survey question 8 indicated that they can send and receive email, including attachments and sending pictures. But, this also means 19% (33 students) do not have this skill which is so necessary for learning in a hybrid course. Because of this feedback, I modified my website for the marketing course for the next time I was teaching it (January to April 2006) to include a review of the basics of sending and receiving emails with attachments, for the benefit of any students who may not have that skill.

Almost three quarters of the respondents ($n=125; \; 73\%$) reported that they found it easy to navigate around websites, and more than half of the students ($n=97; \; 56\%$) found it
easy to make simple web pages and load them up to a site, while almost half \( (n=78; 45\%) \) of the respondents used the Internet regularly for the management of their personal finances. Table 4 illustrates these findings.

**Research Question #2: How Likely are the Students to Use Selected Elements of Internet Based Curriculum for Learning Academic Content?**

The data to answer this question were generated by responses to survey questions 9A, 9B, and 9C.

Survey question 9A asked the participants how likely they would be to use a web page containing course content, such as lecture notes on PowerPoint, and assignment information and information related to the evaluation of student performance. Question 9A, which identifies some of the main components for the hybrid method of teaching, was presented to the students in a hypothetical way. All respondents to this question were students in my classes that, in fact, had a course web page onto which were posted lecture notes and assignment information. While the result showing 87\% \( (n=150) \) of the students would “use the course website often” might seem like a validation for the efforts being made, this still leaves 13\% \( (n=22) \) who would not use the site often or at all which is worrisome to me since, prior to January 2005, these courses had no accompanying textbook as resource.
Table 4

Students' Self-reported Competence in Using Internet functions

<table>
<thead>
<tr>
<th>Internet Function</th>
<th>$n$</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>I'm online a lot, chat, surfing, etc.</td>
<td>141</td>
<td>82</td>
</tr>
<tr>
<td>Search Engines – I find it relatively easy to find what I want using a search engine</td>
<td>141</td>
<td>82</td>
</tr>
<tr>
<td>I find it easy to send and receive email, including attachments and sending pics</td>
<td>140</td>
<td>81</td>
</tr>
<tr>
<td>Navigation – I find it easy to find my way around sites</td>
<td>125</td>
<td>73</td>
</tr>
<tr>
<td>I find it easy to make a simple web page and load it up to a site</td>
<td>97</td>
<td>56</td>
</tr>
<tr>
<td>Personal Finance – I use the Internet regularly for banking and/or checking stocks.</td>
<td>78</td>
<td>45</td>
</tr>
<tr>
<td>I find it easy to make web pages with fancy images, menus, and other features</td>
<td>44</td>
<td>26</td>
</tr>
<tr>
<td>Gaming – I play games online fairly frequently</td>
<td>41</td>
<td>24</td>
</tr>
<tr>
<td>Relationships – I use the Internet regularly for meeting people and participating in special chat rooms</td>
<td>22</td>
<td>13</td>
</tr>
</tbody>
</table>

Note. $n=172$
Twenty respondents (12%) indicated in question 9A that they would “use the course website sometimes,” and 2 (1%) students indicated that they would “not very often” use the website as a source for learning course content. Table 5 depicts these findings.

Survey question 9B asked those students who responded that they would use the course website only “sometimes” or “not very often,” to explain why. The analysis of the themes that emerged from the responses was very informative. Several students indicated a preference for in-class learning rather than through the Internet. They commented: “I would rather take notes in class (than) off the website. Complementary notes on the website would be more useful,” and “Looking up lecture material online may not be efficient because Internet (sometimes) can be a distraction and the endless links lead nowhere. I personally prefer reading concise articles with few URLs.” These comments suggest that the differences in response may be because of different learning styles of students (Kolb, 1984).

Question 9C asked the students who indicated that they would not use the course website “very often” to explain why. Three students also commented that it was important for the professor to remind them to visit the website and why. One student commented: “Have the teacher announce in class what they put on their website;” another said “It’s important to motivate students to go to the website. There should be a way for students to gain participation marks for reading articles provided and giving feedback.” This latter suggestion has the potential to be addressed in the form of a more sophisticated arrangement of the web pages and the addition of an asynchronous chat specific to each online topic, particularly since so many of the students (n=141; 82%)
Table 5

Self-reported Likely Frequency of Students Using a Course Website to Learn Course Content

<table>
<thead>
<tr>
<th>Likely to use website for learning course content to assist in learning the course material</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Often</td>
<td>150</td>
<td>87</td>
</tr>
<tr>
<td>Sometimes</td>
<td>20</td>
<td>12</td>
</tr>
<tr>
<td>Not very often</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>172</td>
<td>100</td>
</tr>
</tbody>
</table>

Note. n=172
indicated previously (Table 4) that they engage in chatting on the Internet “a lot.” However, doing so might move the course to being fully online and deviate too much from the balanced in-class component we strive for in a hybrid context.

One very good suggestion came from a student who said, “I would appreciate the professor letting the students know when the website will be updated and hence the student would know when is the best time to check up on the website.” I implemented this suggestion immediately and have subsequently placed a “last updated” date in red font on most of the teaching units within my site. In June 2005 my students responded favourably to this update announcement and said it allowed them to know if and when any of the teaching units might have to be read again. These findings are consistent with Harley’s (2001) stance that maintaining up-to-date and current content in an online course is critical to maintaining student confidence and it is also important when working with several colleagues teaching multiple sections of one subject.

**Research Question #3. What is the Preferred Physical Environment to Facilitate Hybrid Learning?**

Responses to question 11 of the survey questionnaire and my discussions with the 5 professors provided insights regarding this question. “The physical environment of the classroom must be compatible with the technology being used for teaching and learning” (p. 14) was the finding in a research study conducted by Zandvliet and Buker (2003) of Simon Fraser University. Survey question 11 asked the students to identify the best classroom environment for them in a hybrid course.

In pilot testing the survey questionnaire with my colleagues at Ontario College several of them suggested that there were problems with students being taught in a lecture
format in a computer lab because some students did not pay attention to the class
discussion as they used the computers to surf the Internet during class, and that this
distracted other students as well. The professors who participated in the pilot testing
could not agree whether it was best to let the students surf (because they might be surfing
the Internet for material relevant to the lecture) or have the lecture part of the class moved
to a conventional lecture room where there are no computers to access. Such a room
change might be problematic for scheduling, though. I anticipated that most students
would respond that they preferred to be in a lab setting so they could work on the
computer while the professor was lecturing or instructing on some task, but only 24
(14%) of the students indicated this as their preference. What was somewhat surprising to
me was that about half (n=85; 49%) of the students preferred an electronic classroom
where the professor teaches from a website projected on the screen and students sit at
their desks. Table 6 depicts the students’ responses.

Some hybrid teaching is done in an electronic classroom with a projector that
allows the website to be shown on a big screen at the front. However, sometimes,
scheduling personnel put hybrid courses in computer labs where every student sits at a
computer and goes on the web while the professor is lecturing. Since the time when I
conducted this study, there is the option of enhanced electronic classrooms in which the
lecture room does not have computers but rather many electrical outlets and USB
connections so students can bring their notebooks and laptop computers to class. In 2002,
only one of my more than 200 students at Ontario College and Central University brought
his/her own notebook to the lecture room. By mid-2005, two or three students in each
Table 6

*Preferred Physical Learning Environment in a Hybrid Classroom*

<table>
<thead>
<tr>
<th>Preferred Physical Learning Environment</th>
<th>$n$</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic Classroom – a projector puts the website up on a screen, students sit at desks</td>
<td>85</td>
<td>49</td>
</tr>
<tr>
<td>Computer Lab Enhanced – every student sits at a computer and goes on the web while the professor is lecturing - and the professor has his website projected on a screen</td>
<td>63</td>
<td>37</td>
</tr>
<tr>
<td>Computer Lab – every student sits at a computer and goes on the web while the professor is lecturing</td>
<td>24</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>172</td>
<td>100</td>
</tr>
</tbody>
</table>

*Note. n=172*
class brought notebooks and connected to the Internet through the wireless hotspots that had recently been installed. This may be an increasing trend in the future as wireless technology becomes more accessible.

**Faculty Response Related to Technical Features in Hybrid Classes**

The students’ responses to survey question 11 were shared with the 5 professors who I interviewed and most agreed that there needs to be some additional technical features introduced into the labs to control student activities to facilitate more effective learning in the hybrid classroom.

John explained that in some of his classes at his university, in a lab setting, he can control the monitors of the students. This control, said John, allows him to un-freeze the monitors at times when the students are doing work during the lab, but when he wants to conduct the class in a lecture format, he can freeze the monitors so that the students are not tempted by the distractions of checking their hotmail accounts, surfing, or doing something other than listening to the teacher.

Sandra and Robert said the monitor control feature that John enjoys at his institution was not available in the computer labs at Ontario College and commented that, if it were, it might make things easier in some classes. The student responses to question 11 and John’s situation at his institution proved to be very interesting to Sandra and John. One of the consequences of sharing this information is that plans are now being explored for changing the lab control systems in labs that will be established at Ontario College in the near future.
Research Question #4. How Effective are Selected Teaching/Learning Strategies in a Hybrid Environment?

Data generated by responses to survey questions 10A, 10B, 12, 13 14, 15, 16, 17, 18, 19, and 20, and my interviews with the 5 professors addressed this research question.

The Use of Prelecture Advance Organizers

Survey question 10A asked the students to comment on their use of lecture notes posted on the course website in advance of the lecture as an advance organizer to facilitate learning.

While it may be disheartening to see that only 20% (n=35) of the students indicated that they “frequently read” the lecture material in advance of the next class, I do not know how many students frequently read the assigned readings or lecture materials in advance of traditional classes which have no on-line component. However, 69% (n=118) of the respondents indicated that they do read on-line course materials in advance of the class session at least “sometimes” and only 19 students (11%) admitted that they “rarely” read lecture material in advance of the next class.

Motivating students who have to work through online material is neither a new problem (Brown & Thompson, 1997) nor a recently solved problem (Latuszek, 2004). As early as 1997, Brown and Thompson grappled with motivation challenges. In a Ph.D. dissertation comparing conventional teaching to hybrid teaching of mathematics courses, Latuszek noted that students in hybrid learning environments need to have effective study and time management skills to keep pace with learners in traditional settings. The importance of students’ effectiveness in study and time management skills if they are
engaged in hybrid learning is also emphasized in a study by Kinney and Robertson (2003).

In an attempt to understand the reasons why some students only rarely read course materials posted online prior to their class, survey question 10B asked these students to explain their reasons. One interesting response was written by a student, who commented,

Our generation is LAZY [their caps] so I guess we don’t see the payoff – some ppl would rather just sit quietly [sic] looking at hotmail than participate....overall you shouldn’t forget, that this course isn’t a choice for most of your students.

Another student said,

If the prof is going to be going over all the information in class anyways, then there is no point in reading it beforehand. Also, I found that throughout this semester, I have not had a lot of time to dedicate to this course, so I slacked.

One student commented,

I learn better through discussion. Only if the material is essential to the class, for example, if there is a lab to be completed based on the material, will I read the notes before class. I read the material after class because it is easier for me.

Similarly, another student stated: “I prefer the material to be covered in class first, so thwn [sic] I do read it later, I have a better understanding and am able to relate the readings to what was discussed in class.” These responses suggest that web based advance organizers may be useful for some students but not others, probably because of their different learning styles.

One student’s response addressed the issue of marks for class participation,
Frankly, for the 2% or 3% it's not worth the time. I know it sounds bad, but it's the truth. I really feel that if the marks were more like a 10% or 15% TEST it would [sic] be more effective.

This respondent verbalized the response in terms of a trade-off between time spent reading the site in advance and how many marks they could earn by answering questions in class. It is my habit when I teach using this hybrid method to begin every class with a short series of Socratic questions to ascertain who has indeed read the material before the lecture starts. Students are told that this is one of the times when they can speak proactively and earn class participation marks. In an e-commerce course like this, class participation is worth 20%, but in a first semester course, such as Introduction to Marketing, class participation is worth only 10%.

When this respondent, who I suspect is in first semester, says "TEST it would [sic] be more effective," I think he/she is referring to the fact that, in upper semester classes where class participation marks can be 15% or 20% or higher, there are a variety of ways such a mark is calculated. In a 4th semester marketing course it has been my habit to give one or two short-answer quizzes at the beginning of the class. This quiz will cover the material about to be included in the lecture and is one of the ways of encouraging students to read the course content on the website in advance. Students are told in class the previous week that such a quiz may be coming. However, these quizzes are not done in every class or even every second class, because of time constraints. Knowing that the quizzes are not done every class allows some students to take a chance and skip the reading without consequence.
Five of the responses identified lack of time as the reason for not doing the preparatory reading. Lo (2002) suggests that reading content on a course website is a combination of interest in the subject and time available, and that in the early years of the millennium students are being increasingly challenged for time.

An interesting observation not directly related to the focus of this study is that 9 of the 16 comments contained spelling mistakes or errors in grammar, even though an estimated one third of the participants were Canadian-born native speakers of the English language!

*Response of Faculty Regarding Prereading as an Advance Organizer*

Without exception, one common teaching/learning strategy that all of the 5 professors commented on was the usefulness of having course material online so that students could access this information before the class. Posting lecture notes on a website, in advance of the lecture, theoretically allows students the opportunity to know what will be discussed in the next class and prepare for that discussion. This preparation can help them earn class participation marks. The results of the survey, as demonstrated in the responses to question 10A and 10B of the survey questionnaire, suggest that even if this advance reading opportunity were available to students, only a small number would take advantage of that. Desiring to know if this situation, that is students not doing the prereading, was common among others who had course material online, I asked the 5 professors if they had experienced that same circumstance. Without exception, all 5 expressed disappointment that, despite the efforts they made to create online course content that was accessible to students in advance, in their experience few students read the content in advance of the class.
Robert said that getting students to read online material has to be approached in the same fashion as one would use for getting students to do anything else; the purpose has to be clearly explained and the consequence identified and applied. Robert explained that, if the consequence of reading the online material in advance of the class allows for students to earn class participation marks by being better prepared for the lecture, this should be explained clearly and repeatedly in the beginning classes of the semester. If students understand a clear connection between some online activity and resulting marks, Robert said that, in his experience, it is easier to obtain a higher participation rate in the online activity.

Purves, Mackaness, Medyjckyi-Scott, and Weibel (2004) of the University of Edinburgh suggested, in their September 2004 conference paper that one of the challenges facing professors in sharing online modular materials and other types of e-learning structures was the differences among the creators and the entities being created. Even a cursory examination of e-learning projects reveals a wide variety of different styles and approaches to the delivery and presentation of materials to students. These styles reflect, amongst other issues, differing pedagogical approaches, target audiences, funding constraints and underlying motivations. (Purves et al., 2004, p. 10)

The implications of the observation by Purves et al. (2004), and the experience of the 5 professors I consulted, suggests that individual faculty can conduct their classes such that some positive result may be obtained from a particular teaching method, but this situation might not work for other teachers, and it may not be easy to replicate. Prereading assignments may work in some classes and not in others. Sandra observed that
it is not just a matter of different professors using different online structures. It is also important to consider that one is often dealing with different groups of students. What works for one teacher with 4th semester college students in marketing may be not applicable at all for another teacher teaching university graduate students.

*Learning From Peers*

Participating college students engaged in the hybrid marketing classes that were the context for this study are taught how to make a working e-commerce site. The pages created and developed by the students during the course of the semester are posted live as they progress on the web through the College’s student server. The URL path for the index page of each student web page is listed on a master page on the course website. During the 14 weeks in which the course is taught, students are encouraged to go regularly to the master list page, scroll down the list of student names, and, as a learning experience for them, examine the progress made on other students’ websites. Students are also encouraged to view the completed sites of students in the previous semester in order to obtain ideas and suggestions for the types of e-commerce solutions that they may want to compile in the current semester. These explorations and ongoing discussions among students as the websites progress facilitate constructivist learning.

Survey questionnaire question 12 asked the students how they felt about being able to see the work of other students as they progressively created real working web pages. Well over half of the students (n=117; 68%) stated that they were “very interested” in this learning opportunity; 50 students (29%) declared they were “somewhat interested” and only 5 (3%) said they were “not very interested.” Figure 2 depicts these findings.
This was followed by survey question 13 which asked how often these students had actually taken advantage of this learning opportunity. Fewer than half of the respondents \((n=71; 41\%)\) said they had done so “frequently,” and another 67 (39%) said they had done so “sometimes.” However, 34 (20%) of the students admitted that they had “not very often” or “never” done so. Figure 3 depicts these findings.

I anticipated that all of the students would respond that they had done so “frequently” because I told the students repeatedly to check what other students were doing on their websites to see the range of possibilities that they could consider for their store-front project. Students in the 2005 semester were also frequently encouraged to view the completed sites of the 2004 and 2003 classes, in order to have a broader understanding of the course objectives and expectations. I explained to them that this was a rich source of inspiration and a valuable learning experience for them and how this facilitated constructivist learning.

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Students' expressed interest in being able to look at the web sites made by students in previous sections of the course.

Note. n=172
Students who actually took the time to look at the websites made by students in previous sections of the course.

Note. n=172
I am perplexed, though, by the finding that, while 68% \( (n=117) \) of the students indicated that they would be "very interested" in being able to see the work of other students, but then, when given that opportunity to do so, only 41% \( (n=71) \) indicated that they did so frequently. This finding suggests that the use of learning from peers as a teaching/learning strategy in hybrid teaching needs to be facilitated more actively.

The value of sharing learning experiences among peers is supported by several scholars. For instance, Mercer (2003) explained "from a broad constructivist perspective, learning is a process in which learners actively construct knowledge as they encounter authentic activities" (p. 5). Duffy and Jonassen (as cited in Mercer, 2003) clarify that learning takes place when the learner constructs knowledge from participating in activities and then attempts "to make sense of these experiences" (p. 5). From a constructivist perspective, Brundage and MacKeracher (as cited in Mercer, 2003) indicate that the acquisition of knowledge requires "communicating, comprehending, acknowledging and sharing through group activities and social interaction" (p. 6).

*Privacy Issues Related to Sharing of Online Student Work*

Many students have told me that they found it useful to see other students' pages, but I always wondered how comfortable students felt about other students seeing their work in progress. And, because some students had expressed their reluctance to allow other students to see their websites, survey question 14 asked students if they were a person who did not like other students to see your material, would they be interested in having their name hidden from the master index that other students accessed. More than half of the respondents \( (n=94; 55\%) \) said that "if they did not like other students to see their material" they would prefer to have their names removed from the master index,
while the remaining 45% \((n=78)\) said no they would not want to have their names removed.

This finding is consistent with the views of Kettel et al. (2004) who suggested that “A significant problem to supporting privacy in e-learning is in determining how much information the environment should allow others to see” (p. 1).

It has been my experience, and that of two other professors who teach in similar courses, that relevant guidance and suggestions to students can alleviate potential problems related to students revealing too much personal information on their course web pages. Many students who are new to making web pages become so enthusiastic that at times they post inappropriate personal content on the web. Teachers can gently suggest to students that it is not necessary or even prudent to post certain personal information on the students’ websites. Providing realistic but non-frightening examples of how that information might be used in an unkind way by other members of the class or by any other persons who may see the online content also helps the students to become more aware. After being advised of such vulnerabilities, students will usually adapt or change the content on their websites themselves.

Faculty Perspectives on Students Seeing Other Students’ Work Online

The literature I reviewed indicated there were some concerns related to the posting of student contributions online (e.g., Kettel et al., 2004). I, therefore, asked the 5 professors who I interviewed, “What has been the reaction of your students when they can see the work of other students posted? Did they find it helpful, or did they shy away from comparison?” All 5 professors stated that they experienced positive reactions from their students regarding being able to see other students’ content. Robert had experienced
very positive reactions from the e-commerce students he had taught in a 4th semester marketing course, and Stephen stated that he received positive feedback from the psychology graduate students who made and shared their short video clips with fellow students.

Sandra had considerable experience in the context of handling issues related to student material posted online in her teaching of a masters-level course in which students were required to post substantial content online in the form of online chat answers, and also assignments that existed in the form of online web pages. Sandra said the students were exceptionally interested in sharing and learning from each other’s online content; however, she cautioned that one must take into account that her graduate students were perhaps not typical. Sandra noted that many of the people in her graduate course were high school teachers and college professors so their class participation was more frequent and more substantial than the average undergraduate university or college student.

Login User IDs and Passwords on a Course Website

The question of whether or not to use login user ids and passwords on a course website is a subject relevant to several aspects of this study. It is interesting that the 5 professors with whom this matter was discussed were divided as to whether teachers should, or should not, have some access control. Some of the professors explained that sometimes it is desirable to have some access control in place so that they could monitor the participation of individual students and whether they had, in fact, accessed certain materials, especially those related to required activities which are part of the evaluation of the achievement of learning outcomes in a course.
Student Contributions to the Course Website

Survey question 15 asked the students how interested they would be in contributing information to the course website if the professor allowed them to do so. (See Figure 4)

Eighty-nine percent (n=152) of the respondents were either interested (n=101; 59%) or very interested (n=51; 30%) in contributing to the professors course website, and only 2 students were not at all interested. Table 7 depicts these findings.

I anticipated that many students would respond positively to this question, since this is, in fact, what has happened in the courses that I have been teaching at Ontario College and Central University. Each semester since 2003, when I first offered the opportunity for such participation, dozens of students have emailed suggestions and contributions for material which could be added to the teaching units and other parts of the online course content.

One of the consequences of such contributions being added to the course material is that my students in these courses have demonstrated an exceptionally strong interest in the course and have expressed strong enthusiasm for sharing their learning with other class members and even beyond the classroom. It has been my experience in my classrooms and labs throughout 2003-2005 that when students send in a contribution and have that contribution posted on the course website within hours or days, it has had a big impact on the other students. The posting (a) leads to subsequent emails from other students suggesting additional information to share with the class, and (b) most of the rest of the other students read all the material in the unit again to make sure they have not
Student interest in contributing content to the course website.

Note. $n=172$
Table 7

*Level of Student Interest in Contributing Content to the Course Website*

<table>
<thead>
<tr>
<th>Interest Level</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interested</td>
<td>101</td>
<td>59</td>
</tr>
<tr>
<td>Very Interested</td>
<td>51</td>
<td>30</td>
</tr>
<tr>
<td>Slightly Interested</td>
<td>18</td>
<td>10</td>
</tr>
<tr>
<td>Not Interested</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>172</td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

*Note. n=172*
missed any updates. Such sharing, which can be effected very quickly, takes on an even greater dynamic when one is discussing e-commerce topics that are especially time-sensitive and sometimes highly interesting for their potential impact on the lives of the students.

In mid-2004 one music file sharing format, which was popular among students at Ontario College, became compromised by an imbedded virus which was suspected in a number of identity theft vulnerabilities. After I taught a class on viruses, and explained about the platform for Trojan viruses leading to identity theft, one student emailed a contribution to the online teaching unit dealing with viruses. This contribution explained the nature of the new vulnerability which had the potential to affect dozens of students in the several sections I taught that semester. This was new information of which I was not aware, but proved to be a very valuable addition to the unit, so I posted the students' comments and contribution the next day. It appeared to me that almost every student in the class ended up reviewing the updated virus unit in order to see the recent contribution made by the student. I believe this provided a valuable learning experience for all the students.

The findings in this study of high student interest in contributing to class websites support the observations and recommendations of Laurillard (1993) and Jonassen et al. (1993) who have found that engaging the students in the learning process through processes that enhance constructivist learning is a valuable teaching/earning strategy.

**Faculty Response to Student Contributions to the Professor's Online Course Material**

When I asked the 5 professors if they have let students contribute to the content on their course websites, by either posting something the student found or taking some of
the students’ work and adding it to their course, all 5 agreed that this was a desirable way to move forward in the information age. All of the 5 professors had actually incorporated student contributions to some degree, but nobody was yet [mid-2005] doing this on a regular basis. It was suggested that letting students express opinions about class activities could be, theoretically, easy to effect and a desired ingredient in the context of facilitating student engagement and empowerment. Letting students contribute to the actual online lecture material was considered more challenging since it required some checking and validation of sources and citations, which some of the professors said took too much time.

My personal experience, in allowing students to contribute to building web based teaching units, is consistent with the opinion of the 5 professors concerning credibility and validation. I have found it somewhat time consuming to check the sources of the students’ proposed contributions; nevertheless, in almost all cases, the sources were reliable and the contribution merited adding to the unit. All \((n=172)\) of the student respondents to the survey indicated that they would like to be part of making multimedia content to build into the site. It is understood that this means the students would like to have their contributions not only recognized by text and images, but also by audio and video clips.

Stephen uses video clips, which incorporate student contributions, as part of his graduate school psychology courses at his university. As of October 2005, Sandra has started to use digital video clips as part of her teaching. In one course, Sandra has created a directory of links to students’ e-portfolios from previous semesters and she also uses short video clips to show the incoming students examples of effective interviews. These
video clips are part of the web based material in a course that Sandra teaches in a hybrid format.

*Audio Content Online*

When in 1997 I began teaching, by using content from a website, the content was principally presented through PowerPoint slides, some text notes about assignment information, and a few simple images in .jpg or. gif format. When web access speeds improved in 2000 and 2001 to the point where many students had cable access at home and all labs in the College had high-speed cable with large bandwidth, it was possible to add more image content to my website knowing that students could download and view this material without undue time considerations. In 2001 I had speakers plugged into my PC because I had started using Napster and was enjoying downloading music files and playing MP3s on my computer at work and home as were the hundreds of students I had in my classes at Ontario College and Central University. While I used the audio capabilities of the web in terms of sound files that someone else had created and recorded, it was not until 2003 that I began to consider using audio recording software to make small sound clips of my own voice and added this content to my online course material.

Survey questionnaire question 16 sought to determine if students use headphones or have their speakers on when they surf the web at home. Almost half of the respondents \((n=85; 49\%)\) indicated that they did so “most of the time,” 31% \((n=54)\) did so “sometimes,” and 20% said did “not do so very often” \((n=25; 15\%)\) or “never” \((n=8; 5\%)\).
The purpose for asking question 16 was in the context of knowing how effective I could be in adding audio files to my site. If I knew that most students surfed the web with computers that had speakers, and that the speakers were turned on, then I could add audio file content that was coded to automatically play when the students opened the web page in their browsers. If only a small number of students had speakers turned on, then I would have to provide some type of notice inviting students to turn on their speakers.

The students' responses to this question suggested that I needed to facilitate audio navigation to enable students to find the audio clips easily. For this reason, I created a stylized version of my witiger.com logo in a shape that indicated to students they should click on this symbol so they could hear the audio file. This icon is located at the top of every page of the hyperlinked web based teaching units to advise viewers that there is audio content on the page. Figure 5 depicts this sound icon.

As I began this audio rendering of my website in 2004 and in a more concentrated way in early 2005, I was anxious to know if the time and effort taken to create and upload such audio clips was worthwhile in terms of their contribution to student learning. The second consideration was cost. Each of these audio files was between 30 and 45 seconds. The file size of the .wav format for the clips that I was making for my website average was between 900 KB and 1.2 MB. Adding a few files did not markedly increase my
This is the image that tells people browsing the site that an audio file is available and they can click on the image to hear the content.

*Sound icon.*
bandwidth charges and hosting fees, but by the time several dozen files were added to my site, I had moved up from the 200MB space category to the 300 MB category, and my hosting service was going to charge me a higher monthly fee. I deemed it prudent to ascertain if these audio files were indeed useful to students before doing the work of creating more audio clips.

For these reasons, survey questionnaire question 17 explored the students’ response to the incorporation of audio files as a teaching/learning strategy. Sixty-two of the students (36%) stated they liked the audio components “a lot,” while 85 students (49%) said they were “a little bit interested.” However, 25 (14%) of the respondents indicated “little or no interest.” Figure 6 depicts these findings. These responses may at least partly reflect diversity in learning styles (Kolb, 1984) and multiple intelligences (Gardner, 2004) of these students.

Before inviting students to make audio contributions to the course web pages, I wanted to ascertain if they would indeed be interested in participating this way. The model for these student audio contributions came from Pychyl’s work at Carleton University (http://www.carleton.ca/psychology/directory/pychyl_t.html). Pychyl has been successfully using short video and audio clips contributed by his students in discussing course topics as part of the delivery of his curriculum.

Survey question 18 asked those students who had indicated a positive response to the incorporation of audio content in online course materials if they would be interested in having their voice recorded to contribute to teaching topics, similar to how they traditionally received course credit for class participation. I was astonished that all 172 of the respondents (100%) declared they were “very interested.” This suggests that
Figure 6

Students’ interest in listening to audio content on the course website.

Note. n=172
the study participants are interested in having a voice in the teaching and learning process, and in participating in the construction of learning within the class. According to Muirhead (2001):

Genuine interactivity (communication, participation, and feedback) should empower learners to cultivate both self-directed instructional skills and develop enriching dialog with other students. The issue of interactivity is a vital issue for teachers as they seek to create class work that promotes lively academic dialog and cultivates critical thinking skills (p. 2).

Finding ways to involve students more directly in the teaching and learning process is something that can be facilitated by Internet technologies.

In my review of the literature and searches through various online sources, I found only articles that addressed the use of audio files by students; I found no references related to students actually creating these files.

Faculty Perspectives on Student Interest in an Online Communication

Eighty-two percent (n=141) of respondents to question 8 indicated that they use the Internet regularly for meeting people and participating in chat rooms. Some faculty have employed web technologies related to chat rooms and chat threads in order to accomplish a host of course tasks, such as communicating answers to frequently asked questions. Retired Queen’s University professor W. George Richardson (2004) described to me an early version of asynchronous chat that was set up for his history of engineering course in 1999. Richardson explained that the course which employed chat technology had several hundred engineering students in multiple sections, and that being able to post
answers in the structure of an asynchronous discussion saved responding to dozens of superfluous emails.

Sandra has been using asynchronous and synchronous chat structures within her college and university courses for several years to augment her hybrid teaching. Sandra said she found the use of synchronous chat to be an indispensable component of delivering course content. Sandra explained that she uses the chat for providing announcements about course events, and facilitating peer-to-peer sharing and learning.

Employing a simple variation of an asynchronous and synchronous chat to augment the online course content may be desirable for a number of environmental reasons, as has been the experience of Deanna (pseudonym), an Ontario College colleague. The social-cultural environment within which Ontario College professors teach is one of the most ethnically diverse contexts in North America. Aside from ESL considerations, the experience of a number of Ontario College faculty has been that some students from some cultures, despite encouragement, do not comfortably participate in courses that have class participation as a large part of the curriculum. However, it has been my experience at Ontario College that many students, regardless of ESL ability and regardless of social or cultural backgrounds, participate in online forums where communication involves slang expressions and casual spelling in a way that welcomes people who are not proficient native speakers of English.

In her paper presented at the Canadian Association of Distance Educators (CADE) conference, Mercer (2003) noted the usefulness of chats in the context of eliciting participation from students. “I consistently noted the increase in energy levels
when chats were introduced…. Often these were people who would have significant difficulty writing a few sentences in a traditional course setting” (p. 15).

Understanding that asynchronous and synchronous chat structures are increasingly used by many professors at the college and university level for both hybrid and fully online courses, and appreciating that chat situations have been effective in engaging students who might not normally participate, it is considered desirable to consider plans to include chat structures within the hybrid courses of my site.

*Faculty Perceptions of Multimedia Content as Part of Web Based Course Content*

Some professors at Ontario College use videos of students’ in class presentations on the topic of selling. The videos were made of consenting students who previously took the course, and the professors use the videos, in a TV-based VCR, to show the current students some good and bad examples of a personal selling scenario. These videos are not available through a website. Another college located not far from Ontario College also uses videos in a personal selling course in their marketing program. Despite thorough online searches and phone calls, I was not able to find any other Canadian professors of business or marketing or e-commerce subjects who used video clips in web based course content at the time the study was completed, other than the previously cited examples of Stephen in his university and Sandra at Ontario College.

Ontario College has the resources, facilities, and technical advisors to help faculty with designing, developing, and creating various multimedia structures for teaching and learning and the College is very supportive of faculty creating new features for web based learning. However, I was informed by a staff member that the computers hosting the web pages allocated to Ontario College faculty do not have hard drives large enough to allow
many professors to begin uploading audio files, let alone video files. Some of the 5 professors interviewed suggested that some administrative and financial budgeting considerations would have to be taken into account before the college could handle the demand of several dozen faculty adding large-size multimedia files to their sites. As more faculty consider using enriched media content, such as audio and video clips, the financial costs of IT upgrades need to be addressed.

Without exception, all of the 5 professors said that they would welcome hardware upgrades and bandwidth speed increases allowing them to easily post more content onto their web sites. Robert and Sandra said that the lack of space and bandwidth speed was the reason why they paid, from their own pockets, for independent hosting for part of the web based course content on their site.

*Acknowledging Student contributions Publicly Online*

Survey question 19 asked the students who had indicated they were "very interested" or "interested" in making audio contributions to the course website if they would also like to take the opportunity to have their picture and name posted with their comments so people could see their contribution. Surprisingly, all 172 participants responded to this question and all 172 of them (100%) stated they would be "enthusiastic about having (their) picture posted to accompany (their) contribution!"

At the time the students completed this survey questionnaire, they had already experienced studying online course content that included contributions from fellow students, and these contributions included (only with their written consents) the students' first names and initial of the last name, and pictures beside their comments. Out of a total of more than 50 such postings, only a few female students chose to use the picture of a
famous celebrity instead of a picture of themselves, and two other female students chose to have no image or picture posted beside their comments. Students are made aware that allowing their pictures to be posted beside their comments is completely voluntary and that allowing their picture to be posted is simply for the interest and encouragement of other students. There is no pressure or coercion of any kind exerted on students to agree to participate this way, and all who do must provide their written consent. In the past, some of the students have voluntarily sent in their own digital snapshots rather than use the small images from their student cards. As well, as a preamble to accepting student contributions within the online course content, students are advised about various security and privacy issues related to allowing their names to be posted on a website and there is an online unit within my site that discusses the most up-to-date aspects of online privacy concerns as well as issues related to identity theft.

A number of academics have discussed the beneficial effect of empowering students by acknowledging their contributions to building course content. For instance, Perkins (1993) of the Harvard Graduate School of Education said of student empowerment in teaching and learning that “such a process is highly motivating for students because authorship results in ‘ownership’ of the ideas” (p. 89). Perkins’ mention of ownership is consistent with what the students expressed verbally to me in 2004 and 2005; they felt that by having their contributions become part of the course page, they had literally become part of the course and moved from learner to teacher.

Availability of Online Course Content in Printed Form

Questionnaire survey question 20 asked the participants if they would be interested in buying a printed textbook that contained all the course web pages and
assignment information and other details. Perhaps surprisingly, again all 172 students (100%) replied that they would be interested in purchasing such a resource.

Printed course material still has a role in the hybrid learning environment, even as websites become more enriched. A common practice among my university students, and to a lesser extent among my college students, was to print out the pages of the section of the course website that would be discussed in a particular class, and bring the printed pages to the class, and use that printout to make additional notes as I lectured on the various points. This practice allowed students to follow the main points discussed in class and to add additional information that may have been discussed in class that was not in the posted materials. It also allowed students with ESL challenges to check words and terms in advance and gave them a chance to see how I used the term in the context of the class.

These responses to survey question 20 are consistent with the findings of Van der Vyver and Lane (2004) in their study of Australian graduate and undergraduate students for the purpose of ascertaining certain preferences for course material that was fully online, hybrid, or paper-based. When Van der Vyver and Lane asked their survey participants to indicate their interest in paper-based course materials, the response was strong for continued use of printed materials, even if online information was available. Van der Vyver and Lane’s survey also found that some students were willing to pay for printed course materials, even though course material was available on a CD or online. What is interesting in the Van der Vyver and Lane survey though is that the price that students were willing to pay for extra printed materials was quite low; 23.6% (n=17)
indicated they were willing to pay $0-20 amount, and 43.1% \( (n=31) \) said they were not willing to pay extra for printed materials.

When some of the hybrid courses that I was teaching increased substantially in the number of web pages and images, it became burdensome for some students to print out the web pages for each lecture. Some of the teaching units, such as the one on the International Monetary Fund, were more than 20 pages in length when printed on regular size paper off the course website. Feedback from both my college and my university students in faculty evaluations suggested that they would like the option of buying a package with all the pages printed out in one pile. Selling course notes is not a new phenomenon generated by the Internet; professors have been doing this for decades. However, I hesitated doing so because the content within these teaching units changed so frequently. Nevertheless, the students were insistent that I explore this, and several explained that, even if I made updates all the time, 75% - 85% of the basic information in the particular unit was the same throughout the 4 months of the term.

As a result of students' high interest in printed course notes which they expressed to me well before this study was conducted, I created and published a textbook which was an edited compilation of all the online teaching units and other online lecture material for one of my Ontario College e-commerce courses which was made available for purchase by the students for the marketing sections that began in January 2005. I observed that during the time of this study between January and the end of the term in April 2005 many of the students brought the book to class on a somewhat regular basis, and many made notes directly on the textbook pages. Although this practical experiment seemed to be somewhat successful, I did not know how such a textbook would be
received by my university students. I was surprised that all of the respondents (including the 35 students in the university classes) said they would be interested in purchasing a book which was a printout of all the course web pages.

Faculty Perspectives on Producing a Book to Accompany the Hybrid Content

Aside from my personal experiences, I wanted to probe and find if the concept of a book augmenting the web based hybrid course content was truly something that other faculty would be interested in and would consider a valuable resource. In my concluding conversations with the 5 professors interviewed in this study, I asked each of them, “Have you had your online course content printed in a traditional book or booklet form so students can use a hard copy for studying or making notes?” The professors all said that they had not done so. All 5 had written material that was used in their courses, but nobody had taken their online material and repackaged it in the form of a book.

The concept of producing a book from web based hybrid courses is something that sounded interesting to the 5 faculty with whom I spoke, but as far as I could ascertain, nobody had done this at any of the colleges or universities in southern Ontario with whom I spoke. I found many examples of notes and articles printed for distribution from web material, but no books with a formal structure such as we know a book to be.

While almost all of the 5 professors expressed interest in the concept of a book based on web material, there were challenging questions, such as “Why would you want to be burdened with all the work to do this when the students can print the pages?” I explained that my students told me they did not like printing out so many pages and that despite all the great intentions of having material on the web so it could be accessed through the Internet anywhere, many students expressed preference for paper-based
materials when it came time for studying for quizzes, tests, and exams. The university students in particular explained that when they study for exams they carry the course material around with them 24/7 and read it on the bus, at lunch, and in the hall, for instance, and welcomed the opportunity to have a book for the hybrid courses I had been teaching at Central University.

**Conclusions**

What factors influence the students’ abilities to access and learn from web based course content? From the students’ perspectives in this study, gender issues are not relevant in how hybrid teaching is created or delivered. Student access to the web based course content, from home, in terms of downloading speed, might possibly be an issue in the case of large file formats used in enriched images, audio, and video.

How likely are the students to use selected elements of Internet-based curriculum for learning academic content? A strong majority of students like using the Internet for learning and had expectations that course content should be available online. Although some students indicated a strong interest in using web based course content, it is a slightly smaller proportion that actually accessed such content on a regular basis, despite expressions of interest in wanting such information to be available online. Some students needed to be motivated to read the online course material and respond to various methods to affect this. Students were also keen to know when online course content is updated so they can plan their reading accordingly.

What is the preferred physical environment to facilitate hybrid learning? Although there may be significant course material online for a particular subject, this does not necessarily correspond to having the class taught in a computer lab where Internet access
could be obtained by each student during the lecture. If scheduling circumstances mean that a subject is being delivered in a computer lab, some professors have found it advantageous to have control over the student computers such that each monitor can be frozen in order that some things can be communicated without the distraction of each student accessing the Internet while the professor is talking at the front of the room.

How effective are selected teaching/learning strategies in a hybrid environment? Motivating students to read online course content in advance of the related lecture has proven to be a challenge by most professors who have experience with hybrid teaching. Some suggestions for increasing the degree of advance reading include having quizzes at the beginning of each class – if these quizzes covered the assigned online reading. Other suggestions included making sure the material to be read online was indeed interesting and useful such that the student would want to do the reading with a clear understanding of the consequence and purpose explained in advance by the professor. It was also suggested that class participation marks could be earned through different methods, such as allowing students to make contributions to the online course material. Peer learning, facilitated by the process of seeing other students’ work online, was also expressed as an aspect of an effective teaching strategy in a hybrid environment. While privacy issues merit some consideration, a large majority of students expressed enthusiasm for being identified as contributing to the online course content and allowing their respective contributions to be recognized in the learning material. The professors who have experienced situations where students are identified as contributors to online material noted that this was a very positive experience and they are endeavouring to continue developing this aspect. As computers develop increased capability commensurate with
improvements in Internet access speeds, there is an increased interest in going beyond
text-based course information towards audio and video content. Students surfing online
these days [2005] do have their speakers on and are interested in audio-based online
course content. If given the chance to be part of producing online audio course content,
100% of the respondents in this study would take the opportunity. Professors who had
experience with producing audio files for online course content were enthusiastic about
this opportunity to engage the students in a participatory way at the same time
considerations about hardware limitations and bandwidth speed have to be taken into
account.

Effective strategies for teaching and learning in a hybrid learning environment
can also include production of textbook-like publications which contain the web based
course content. Students were interested in printed course material from the online site
even though they can access the online material in a variety of ways.

In Chapter Five I will explore the implications of these findings for teaching
practice and further research.
CHAPTER FIVE: SUMMARY, DISCUSSION AND IMPLICATIONS / RECOMMENDATIONS

If this study explores the perceptions of students and faculty regarding hybrid teaching strategies, it is valid to discuss current perspectives on the meaning of the term "hybrid teaching." Hybrid teaching is described, in slightly varying ways, by a number of educators.

Hybrid courses are courses in which a significant portion of the learning activities have been moved online, and time traditionally spent in the classroom is reduced but not eliminated....Using computer-based technologies, instructors use the hybrid model to redesign some lecture or lab content into new online learning activities, such as case studies, tutorials, self-testing exercises, simulations, and online group collaborations (Garnham & Kaleta, 2002, ¶ 1).

Usher, Pester, and Boyd (n.d.) of Montana State University suggested in their website titled “Putting a Course Online,” that there are a variety of ways to conduct hybrid courses. They stated that,

Some [hybrid] courses may meet physically on a very regular schedule but have access to some readings, syllabus, or other materials online. Other courses may meet only occasionally in person and all of the course materials and much of the interaction takes place online (p. 3).

Learning Object Applications

Theory is one thing; actual practice is another. How did Learning Objects come to be used in practice? Learning Objects, in the beginning (2002 and 2003), were mostly associated with teaching medical and health topics (Krauss & Ally, 2005) and, for
example, explained things such as the variances in a heartbeat. The student was able to load a CD with some graphics illustrating the teaching point and click around the unit learning various points and concluding with a quiz for verifying learning outcomes at the end (Wiley, 2001). As professors started to create these Learning Objects, the most obvious thing that developed was an interest in sharing Learning Objects with other educators (Nelson, Megens, Pitts, & Lundstrom, 2003), and so it was that in 2003 and 2004 that several institutions in Canada and the United States began to discuss how to collect and index these Learning Objects into various repositories (Laleuf & Spalter, 2001).

Beginning in 2001, I also began creating Learning Objects, but I found several differences between my objects and the Learning Objects being used [2001-2003] in biology and other sciences. One key difference was the fact that I made my Learning Objects as web pages and they were hyperlinked to each other. Hyperlinking meant that the objects could be indexed by search engines and also navigation among Learning Objects, through the hyperlinks, made them easier to find on the WWW. The fact that this teaching material could be found online meant that I also enjoyed the benefits of reciprocal sharing with other professors who found this material and then emailed me to in turn share some of their teaching information and structures.

Second, unlike Learning Objects used in medicine and health sciences, my Learning Objects did not have quizzes and other testing material at the end; they were simply collections of information on a specific topic.

Third, the Learning Objects that I created were not for medicine or biology or health science but rather for use in e-commerce and international business courses.
Fourth, my Learning Objects were not “static” burned onto a CD, but rather updated weekly or monthly on the website to reflect ongoing student contributions and the influences of the fast-paced technological environment and the frequent changes in the competitive business environment. Given these four distinctions from the early definitions of Learning Objects, I named these learning structures “Web Based Hyper Linked Teaching Units.”

Fifth, the student input, which made these Learning Objects so interesting to fellow students, was something that I could not find in the Learning Object CDs and DVDs used in biology and other sciences. The fact that students were constantly being added in to update my teaching units, was a dynamic that could not have been easily replicated in CDs and DVDs unless one had the money to burn a new series every day or two and redistribute these to the learners.

By being web based, instead of on a CD or DVD, the information in these units could be more easily integrated into the websites that I had been using to teach e-commerce and international business courses. Essentially, the units were “plug and play” components of teaching content.

By being hyperlinked, these units could (a) be found by search engines, and (b) be expandable and have either a high degree or low degree of granularity. Granularity refers to the degree to which a unit of learning is either tightly focused on the subject or widely focused. A high degree of granularity, for example, would be a teaching unit discussing “The International Monetary Fund (IMF) in Argentina in 2003.” A low degree of granularity would be “The IMF in Latin America;” lower still would be, for example, “Basics of the IMF.”
Web Based Hyperlinked Teaching Units

Since these teaching units I developed in 2001 were not, strictly speaking, fitting the early descriptions used of Learning Objects, I coined the phrase “web based hyperlinked teaching units” until such time as a better term could be found. The broad-based IEEE definition would have allowed these teaching units to be called Learning Objects, but the actual practice of people in the community was that Learning Objects was a term mostly applied to learning structures created for teaching in the health sciences.

Throughout 2003, 2004, and 2005 I spoke at several academic conferences and presented the concept of these units. Upon speaking at sessions in these conferences, it was my habit to repeatedly ask members of the audience to assist in coining a simpler term, but by mid-2005 no substitute reared its head, so I decided to continue with the phrase “web based hyperlinked teaching units.”

Two other aspects make it challenging to apply the term “web based hyperlinked teaching units” to be a variation of Learning Objects. First, many of the teaching units that I am using in my e-commerce and marketing courses have audio files imbedded in the unit. That is to say, these structures are not just text and image based, but they also have audio clips. Some of the audio clips are recordings of my voice explaining some teaching point; some clips are recordings of students making contributions.

Second, many of the units I use feature contributions by students, which is a characteristic not seen in many other Learning Objects. From 2003 to 2005 I searched Yahoo and Google (and recently Google:Scholar) and could not find any other Canadian professors (with the exception of Selia Karsten in Toronto and Timothy Pychyl in
Ottawa) who used Learning Object type teaching units with student input obviously imbedded into the content. Australian professors, Catherine McLoughlin and Joe Luca, (2001) delivered a conference paper in which they discussed the theory of student participation and student-initiated contributions to learning resources, but it was not clear from reading their paper if this suggestion was a theoretical proposition or based on some actual practice that they had done in their classrooms. McLoughlin and Luca suggested that web based learning means new concepts for developing curriculum and, in this context, pointed out that,

Enabling students to make contributions towards learning resources, assessment also becomes more learner-centred and performance-based. For example, in some activities students can post new URLs to the course site so that others can share and critically evaluate them, and these resources become part of the learning activity. (p. 4)

These suggestions made by McLoughlin and Luca are in fact exactly what I have been doing with my students for several years [2002-2006]. The students send emails and make comments, and these contributions become embedded into the teaching unit particular to that topic. All contributions do include written consent from the student.

Purves et al. (2004) from the University of Edinburgh presented a paper at a September 2004 conference in Austria in which they acknowledged the importance of sharing material and incorporating student input. They suggested that,

As technical and pedagogic issues are addressed, so attention is turning to methods of sharing material ... and ways of facilitating the customisation process by which material can be tailored according to student ability; course structure;
content and associated activities; and localisation of material according to geographic regions familiar to the student. (p. 1)

The enhancements that I have added to Learning Objects, which include multimedia content, student input, and being hyperlinked on the Web, make “web based hyperlinked teaching units” interesting and novel teaching tools, but there still is the taxonomic challenge of what to call them.

As noted previously, from 2003 to 2005 I participated as a speaker at several academic conferences in southern Ontario. These conferences were all oriented towards teaching in the information age and delivering course content using different aspects of Internet technologies. Invited to talk about my developments of web based teaching materials in a hybrid format, I spoke at the conferences about the developments of the teaching units. I considered participation at these conferences to be a useful exercise in the context of finding participants with whom I could engage discussion about the online structures that I was building. I hoped also that such participation could allow for useful opinions and contributions in time for inclusion in this study. The sessions at which I presented my papers went well, and the audience members expressed enthusiasm for learning about how I had the structures in questions, but no contributions were forthcoming as to what to call the entities I referred to as “Web based Hyperlinked Teaching Units.” A number of participants did say these teaching units could be simply referred to as enhanced Learning Objects but other participants said that term was not widely accepted at the time [2004-2005]. Therefore, I am in the rather unusual position of writing the final chapter for a study about a subject to which there is not a commonly
accepted term, without resorting to a six-word homemade definition that may or may not prove to be acceptable to my colleagues.

**Implications for Teaching: Students Reading Online Course Material**

One of the central themes of this study, and a key concern of my current teaching practice, is the question of creating an online course content available, hoping the students will read it in advance of the lecture, so that you can have more stimulating class discussions and depart from the traditional mode of one-way delivery. Survey questions 10 and 10B, as discussed in Chapter Four of this study, revealed that a modest number of students do, in fact, read the assigned course material online in advance of the forthcoming class. This challenge was looked at in the context of the web based tools currently available and also in the bigger context of motivating students in general.

One of the ways I have endeavoured to address the interest factor, in encouraging students to read assigned material prior to class, was by allowing students to make contributions to this material and have their contributions acknowledged such that other students could see this input. The answers to survey questions 15 through to 19, plus observant practice since the survey was concluded in mid-2005, suggests that engaging the students in such a participatory way does indeed increase the rate of reading before class, but it is a struggle and there are other issues involved.

One of the issues involved in encouraging students to read material online before a particular class is the fact that some students just are not that interested. Other students, like those who typed in answers to question 10B of this study, consider reading in advance a waste of time and effort if the professor is going to cover the material anyway or if they find it hard to find online material using cluttered search engines.
Based on the research of Bures et al. (2000), one might try to counter negative perceptions of using the Internet with some tutorial classes at the beginning of the term in order to assist students who find some tasks (such as finding information through search engines) challenging or difficult. Secondly, persons teaching hybrid classes, which might require a high degree of student enthusiasm, might consider making more direct efforts to explain how participating in a hybrid class can be of benefit so that all learners can address the tasks of the course with the energy and diligence necessary for accomplishing the objectives.

Robert, one of the professors participating in this study, said that getting students to read online material has to be approached in the same fashion as one would use for getting students to do anything else; the purpose has to be clearly explained and the consequence identified and applied. Robert explained that, if the consequence of reading the online material in advance of the class allows for students to earn class participation marks by being better prepared for the lecture, this should be explained clearly and repeatedly in the beginning classes of the semester. If students understand a clear connection between some online activity and resulting marks, Robert said that his experience shows it is easier to obtain a higher participation rate in the online activity. Robert’s comments and the results of survey question 10 imply that, if a professor wants the online course material to play a bigger role in the teaching and learning process, more specific direction and repeated guidance may need to be implemented.

If the online course content within my web based teaching units was not changed frequently one approach I might try, to ensure reading in advance, is to create an online multiple-choice questionnaire which would be completed by the students as part of
earning class participation marks. In order for such a structure to work, it would be required for students to login with a user ID and password so that the successful completion of the online quiz could be properly credited to the student who had completed this task. Such online quizzes are done with some simple first and second semester courses at Ontario College, but these courses are highly static and the particular questions are such that the answers would not change over the time of several semesters, allowing for some "return on investment" for taking the time and effort to construct such a testing process. Additionally, it must be considered that the login process can be done feasibly only in the context of a Course Learning Management System (CLM), such as WebCT or BlackBoard, where the course structure contains all the students' user IDs automatically loaded into the marking mechanism.

Implications for Teaching: Peer Sharing among Students

I am perplexed, though, by the finding that, while 68% \((n=117)\) of the students indicated that they would be very interested in being able to see the work of other students, when given that opportunity to do so, only 41% \((n=71)\) indicated that they did so frequently. This finding suggests that the use of learning from peers as a teaching/learning strategy in hybrid teaching needs to be facilitated more actively. Perhaps some additional research needs to be undertaken to examine why this opportunity was not exploited as fully as possible, and if that research revealed some reasons for the lack of peer viewing, then faculty who have such a teaching situation could use that information to more effectively encourage peer learning in this context.

One classroom method that Sandra exploited to great effect in her marketing classes at Ontario College was to take time in class and show "cool things" she had found
while marking other students’ web pages from the previous semester. Showcasing such work led to students being curious about other student work they had not viewed and Sandra told me this contributed to more active peer learning. Following Sandra’s example in late 2005 I tried this method in one e-commerce class at Ontario College and was happy to see the results as the rest of the lab time appeared to be devoted by the students to clicking around each other’s web pages.

**Implications for Teaching: Handling Enriched Media**

Looking ahead to the future semesters, I am hopeful that new students taking my course will use the course audio files, since 80% responded to Question 16 that they had surfed the web at home with their speakers on most of the time or sometimes. However, having your speakers on for music, which is what most students told me they do, is not the same as having your speakers on and deliberately listening to the audio files which are part of the online course material.

Audio clips were just added to my website beginning in 2004, and it was not until mid-2005 that there was a sufficient quantity of these clips to be noticeable. By the end of 2005 there were more than 100 audio clips on my site implanted in more than 20 of the web based teaching units. In the near future [Q4 2006] I intend to conduct a short survey to specifically obtain feedback on the audio clips and ascertain details as to how they contribute to students’ understanding of the course material. For now, all that can be concluded from the existing survey findings is that these clips are well received and more should be made.

While short video clips are technically possible to construct for hybrid teaching sites such as mine, it was economically challenging to create and host such files at the
time this study was conducted (2003-2005). The creation of video files is more time-consuming than making simple audio clips and the hosting costs for video files is much more costly than smaller sized audio files. Blurton (2000) discusses the use of multimedia formats in a chapter of the UNESCO World Communication and Information Report and explains that in terms of using web based teaching for imparting course content in the global community “audio based materials have a significantly higher usage in developing countries than in developed countries. Production of audio materials is relatively inexpensive and requires less technical sophistication than other electronic learning materials” (p. 7).

Using media-rich content on websites designed to deliver course content has been challenging in the early years of the millennium because of the costs of high demand for broad bandwidth and the cost and technical considerations of storing very large file formats on academic servers. Kanitz (n.d.) explains that it is technically possible to put lots of media-rich content on professors’ web pages, but the administrators of the servers often do not allow for space to be allotted for very large files. He noted as well that the bandwidth speeds for student access would not be sufficient to allow a large number of media rich files, as proposed for witiger.com, to be downloaded. To cite an example; just one DVD movie that was intended to be used in my e-commerce class, took 1.1 gig of space on the server. This amount of space was greater than that normally allocated to several dozen faculty, so the file could not be loaded up. Secondly, Kanitz explained that it would take a very long time for dozens of students to download a file of this size, and multiple attempts to do so might crash the server.
In the beginning years of dealing with enhanced content on websites, faculty often looked to solutions, such as distributing CD-ROM packages when problems with Internet bandwidth stymied plans for loading too much content online (Fister, 1998). Van der Vyver and Lane (2004) at the University of Southern Queensland in Australia, conducted research on how students perceived the merits of three modes of course delivery: paper-based, online, and hybrid. Van der Vyver and Lane noted that more and more faculty were incorporating audio content into their courses as the technological environment facilitated this with faster bandwidth speeds and greater server capability.

**Implications for Teaching: Asynchronous and Synchronous Chat Structures**

In the context of engaging students more actively in the learning process through participatory circumstances, it is useful to acknowledge that asynchronous and synchronous chat structures are increasingly used by many professors at the college and university level for both hybrid and purely online courses, such as the situation noted by George Richardson (2004). Appreciating that chat situations have been effective in engaging students who might not normally participate, it is considered desirable to pursue plans to include chat structures within the hybrid courses of witiger.com and explore the possibility of weaving some of the subsequent contributions into the teaching units.

**Implications for Future Research**

While I am pleased that students expressed interest in a form of peer learning by wanting to look at other students’ websites [Question 12], it was discouraging to see by the survey findings [Question 13] and observant practice in 2004, 2005, and early 2006 that many did not take advantage of this opportunity. While we have discussed some ways of dealing with this, including suggestions made by Sandra, it would be interesting
to see the results of some further research that specifically targeted why students may or may not view other students’ work and what is viewed and what is interesting. The information from such research could assist professors in increasing the degree to which peer learning becomes utilized more in hybrid classes.

Question 17 and 18 dealt with the students’ interest in accessing audio clips within the online course material and also being part of having their voices included in some of the clips. The creation of such clips is still a time-consuming process but it would be interesting to do some research at a later stage to evaluate the effectiveness of delivering course content this way. It would also be useful to know the experiences of other professors who are using audio clips and what methods and processes have proved to be successful.

The last question of the survey, Question 20, invited the students to express their opinion about whether they would be interested in a printed compilation of the online course teaching units relevant to each course. While an amazingly high percentage said that they would be interested in buying such a compilation in book form, in reality [early 2006] it has not been the case. Book sales for the students in the university course were only about 50% of the class numbers and in the college courses that I teach, the numbers who bought the book ranged from 60% to 65%. I do not know if these percentages are good or bad, comparatively speaking, and the publisher Thomson Nelson said that such a product has not been done often enough that they would be able to gauge the effectiveness. It would be interesting to conduct some research as to how a book accompanying the online material of a hybrid course may contribute to student retention of key concepts and learning objectives but such a situation has only just begun so we
might have to wait another year or two. I suspect that the degree to which students will buy a printed copy of web based course content directly depends upon whether the subject matter is relatively static, such as a history course, or dynamic, such as an e-commerce course.

**Implications for Practice: Recommendations to Administrators**

In terms of peer learning, one administrative and technical consideration that affects the ability of students to see the online work created by previous students is the degree to which the institution will designate server space so that such online content can still be viewed several semesters after a student has finished a course. Selia Karsten (n.d.), professor at Seneca College and University of Toronto, says server space considerations have been challenging since colleges and universities are strained by budget considerations and it costs money to have content stored online for hundreds of students' projects, especially if those projects are large file formats including audio and enriched images.

One of the questions [Question 11] that this survey dealt with, which directly relates to scheduling and facility management, is the matter of computer labs versus electronic classrooms for hybrid teaching. While a majority of the student survey respondents preferred an electronic classroom to an enhanced computer, in retrospect, I must admit that what makes Question 11 somewhat weak, in terms of analysis, is the fact that students were not asked in a preamble question if the subject they were being taught was oriented to a lecture or a lab. Some of the students were taught in a lecture style format with a screen at the front of the room projecting the course website. The students at Ontario College were mostly taught in a computer lab format. If a preamble question
had been asked, it might have been possible to more precisely determine if it was lecture
students who liked the lecture format and lab students who liked the lab format. One of
the considerations I had at the time of conducting the survey was the desire to minimize
the number of questions so that students would not think the task was time consuming
and, hopefully, a high response rate would be forthcoming. This situation in the case of
Question 11 shows the weakness of being so parsimonious.

One of the significant implications for faculty using hybrid teaching is additional
training and professional development that is required so that the professors can
adequately create and frequently upload content to their respective websites. Owston
(2004) and his colleagues at York University, who have been working with the Canadian-
based Advanced Broadband Enabled Learning (ABEL) project (http://www.abelearn.ca)
recognized the importance of faculty training for Internet-oriented teaching. They
delivered a paper at the Society for Information Technology & Teacher Education 15th
International Conference in Atlanta in March 2004 and noted that training for teachers
using leading edge Internet technologies should be training that is sustained and involve
many aspects. As they stated, “ICT specific professional development should involve
teacher hands-on technology use, a variety of learning experiences, ongoing technical
assistance and support, and learning curriculum-specific software applications” (pp. 1-2).

It is not just Canadian educators and senior educational administrators who are
grasping with the challenge of having faculty who are savvier at building and using
websites for teaching, but people throughout the OECD are concerned about such
capabilities. As White (2003) indicated, “Australia’s experience has been that the
implementation of e-learning involves not only the implementation of innovative
hardware and software, but the professional development of teachers in this digital medium" (p. 2).

Based on the feedback from students in this research survey and noting feedback and communication with college and university colleagues at several conferences, I suggest that senior college and university administrators should provide the following:

- Enhanced training to empower faculty with the ability to create and post content online for teaching traditional attended classes, which, by virtue of the additional learning materials online, become, by definition, hybrid classes;
- Funding for IT departments to increase server space allocations to allow for more media rich content used by professors teaching courses with web based content. Students have demonstrated that they have high expectations about the ability of the professors to use a variety of web based resources, and faculty need to be able to match these expectations in an increasingly competitive post-secondary community of colleges, universities, and private institutions.

**Recommendations: SEO – Search Engine Optimization**

If a reader of this study is part of the community of professors who are making web based learning structures, such as Learning Objects (media enriched or otherwise), one of the things that will be rewarding is to construct the structure in such a way that it can be easily indexed by the major search engines and can, therefore, be found by other professors. The experience of Karsten (n.d.) and me is that having online learning material indexed by search engines has resulted in other professors finding some of the
content others have developed. When other professors find this content there is a fair chance they might contact the author to share information they have obtained. Such exchanges can allow for additional contributions, which, in turn, benefit the students who are using the material for learning.

In order to be found online, there are a number of technical and non-technical things that can be done to increase the ranking of your content in search engines.

**Conclusion**

During the process of conducting the research for this thesis, the survey of the students, and reviewing the extant literature regarding hybrid teaching, it became evident that this method of teaching is desirable for the students. Compared to my experience in teaching college and university courses in the early and mid 1990s, instructing with web based hyperlinked teaching units in the new millennium, enriched with student contributions, online video clips, and audio files, results in a learning environment that engenders a high rate of class participation. As the survey revealed, virtually all of the students wanted to be part of a process where their contributions become part of the teaching material. The students felt that their learning is useful and purposeful and above all contributed to their learning community. Many students spoke to me about the process of building these teaching units. A number of students said that the most encouraging thing to get them involved is that they knew that their contribution would be used by students in the following semesters so that they, in effect, become part of the teaching process.

The consequence of conducting the research and survey for this thesis was a wonderfully fulfilling exercise and exciting validation of the hybrid teaching I have been
developing these past few years (2000 – 2006). There is more work to be done with future interest in the exciting opportunities in making more student audio clips in the online content and the very recent opportunities in creating video clips as bandwidth speeds increase and as computer processing power becomes faster and more capable to exploit that technology.

Readers of this thesis may consider that the next step would be somewhat evangelical and involves talking about hybrid teaching structures with like-minded faculty and explore discussions about the need for some research to ascertain how faculty can create and share more hybrid content within the circumstances of teaching in the later years of the first decade of this new millennium.


Rola, M., (2003). Benefits of online learning overhyped. quoting Henry Jacek, President of the Ontario Confederation of University Faculty Associations


Appendix A

Research Survey Questionnaire

Please complete all the questions.

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**Q1:** Student Profile, study

- full-time
- part-time

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**Q2:** Student Profile, Institution

- 1st semester college
- 2nd semester college
- 3rd semester college
- 4th semester college
- 5th semester college
- 6th semester college

OR

- 1st year university
- 2nd year university
- 3rd year university
- 4th year university

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**Q3:** The material on the internet used in the courses taught at Seneca College and University of Toronto is in English. How comfortable do you feel in your ability to understand written English fluently?

I can understand 100% of all the written material on the academic web sites used for teaching
I can understand most of the written material on the academic web sites used for teaching
I can understand the written material on the academic web sites used for teaching if I have access to a dictionary
I have some difficulty understanding most of the written material
Q4: When this questionnaire was being prepared, there was some consideration as to whether male students and female students might have slightly different answers to some questions. In your opinion, do you think there is a strong male / female difference in internet use?

Yes
No

Q5: If you answered "Yes," do you think the difference might suggest professors have to change the academic content of a teaching website based on the ratio of male or female students in a class?

Yes
No

Q6: Internet Access

Select the one which indicates how you access the Internet; for example, if you use the computers at school, and you have a computer at home, pick # 4.

School labs
home
notebook brought to school
school labs and home
school labs and home and notebook brought to school

Q7: Personal Profile: Internet

This question is about how much you "like" using the internet, NOT whether you are good at it.

I love using the internet
I like using the internet
Using the Internet is OK, but not fantastic
I don't like using the internet, I only do it when I have to
I extremely dislike using the internet
Q8: Personal Profile: Internet

This question is an attempt to determine how good you think you are using the internet.

You may check off more than one box.

I'm online a lot, chat, surfing, etc.
navigation - I find it easy to find my way around sites
Search Engines - I find it relatively easy to find what I want using a search engine
Gaming - I play games online fairly frequently
Personal Finance - I use the internet regularly for banking and/or checking stocks
Relationships - I use the internet regularly for meeting people and participating in special chat rooms
I find it easy to send and receive email, including attachments and sending pics
I find it easy to make a simple web page and load it up to a site
I find it easy to web pages with fancy images, menus and other features

Q9A: Just because a professor makes a website doesn't mean students will use it. If a professor made a web page containing course PowerPoints, assignment information, grading structure, lecture notes, etc., would you

Use the course website often to assist in your learning of the course material
Use the course website sometimes
Use the course website not very often

Based upon how students answer this question, the results may help professors determine how much time and effort they should put into building and maintaining websites to fit course content

Q9B: If you answered "Use the course website sometimes" - please explain in the box below what would be the things that need to happen in order for you to use the website more frequently

Q9C: If you answered "Use the course website not very often" - please explain in the box below why you might not use the website

Q10A: Posting lectures notes, on a website, in advance of the lecture, theoretically allows students the chance to know what will be discussed and prepare - which can help earn
class participation marks etc. In MRK 410 Prof. Richardson regularly tells students to read "X" before the next class - in reality, how well does this work?

I frequently read the lecture material in advance of the next class
Sometimes I read the lecture material in advance of the next class
I rarely read the lecture material in advance of the next class

Q10B: If you answered, "I rarely read the lecture material in advance of the next class" - please explain in the box below why

Q11: Teaching Facilities

Labs VS. Electronic Classrooms

Hybrid Teaching is a new term to describe professors who have a website and use the site to provide some material online as well as teaching in a classroom setting. Some professors have a simple site, while other professors have a more detailed site and "go live" on the site in class.

For business and marketing classes when a professor is teaching at the front of the room, what is the best learning environment for you?

Electronic Classroom - a projector put the website up on a screen, students sit at desks
Computer Lab - every student sits at a computer and goes on the web while the professor is lecturing
Computer Lab Enhanced- every student sits at a computer and goes on the web while the professor is lecturing - and the professor has his website projected on a screen

Q12: Sharing learning Experiences. In a class like MRK 410, where students make a real working webpage, and post the pages online their own sites, how do you feel about being able to see the work of other students?

Very Interested
Somewhat Interested
Not very Interested

Q13. In a class like MRK 410, where you can see the work of other students; have you taken advantage of the opportunity of looking at other students work?
Frequently
Sometimes
Not very often
Never

Q14. Some students have expressed shyness at allowing other students to see their material, in a class like MRK410. There are options available to deal with this. If you did not like other students to see your material, would you be interested in having your name hidden from the master list?

Yes
No

Q15: Student Contributions. Teaching and Learning in 2005 is much different than in 1995 since the Internet allows for many things to be done that were previously not possible - for example, students can send emails to the teacher, and the info in that email can become part of the course webpage - so the student is actually helping to build the course. This can be exciting for students in e-commerce courses or international business courses where current events happen very quickly. If the website of your professor allowed you to send in information, which was subsequently posted on the site, would you be

Very Interested
Interested
Slightly Interested
Not Interested

Q16: Student Contributions. When you surf the web at home to you have your speakers on, or use headphones?

Yes, most of the time
Yes, sometimes
No, not very often
No, never

Q17: In 2004 Prof. Richardson began putting small audio files on some of the learning units, so students could click and hear his voice speaking about certain points. The
purpose was to allow students to learn audibly as well as visually. If you have come across these files, and listened to some, do you like them?

Yes, I like them a lot
Yes, I am a little bit interested
No, not really interested
No, not interested at all

Q18: If you answers A or B to Question 17, would you be interested in your voice being recorded to contribute to some teaching topic - similar to how you may presently earn class participation points for emails and other text based contributions?

Very Interested
Interested
Slightly Interested
Not Interested

Q19: If you answered "Very Interested", or "Interested" in the previous question, would you like to take the opportunity to have your picture also posted with your comments and your name so people could see your contribution?

Yes, I would be enthusiastic about having my picture posted to accompany my contribution
Maybe, it depends
No, I would not like my picture posted

Q20: Additional Resources

If all the course web pages and assignment information and other details were also printed out into a textbook which you could carry around with you, and read when you were not near a computer, would you be interested in buying such a textbook?

Yes
Maybe
No
Appendix B

Interview Guide for 5 Professors: Questions Asked

Text of the email sent to the 5 professors soliciting comments and opinions about aspects of the survey research and results.

here is what I wish to discuss on xxxday

1. for how many years have you had a website up and running on which there was course content to augment your teaching of a "traditional" attended class (I'm not talking about web sites for pure online courses)

2. Posting lectures notes, on a website, in advance of the lecture, theoretically allows students the chance to know what will be discussed and prepare - which can help earn class participation marks etc. The results of my survey suggested that although this opportunity was available to students, only a small number were taking advantage of that. Have you had a similar experience?

3. Some Hybrid teaching is done in an "electronic classroom" with a projector that allows the website to be shown on a big screen at the front, sometimes, scheduling people put us in computer labs where every student sits at a computer and goes on the web while the professor is lecturing. Regardless of what the prof might think is the best set-up, I wanted to ask the students what they thought, and they gave their answer.

For the courses you teach, do you prefer just to have the website on a screen at the front, or do you teach in a lab format?

4. What has been the reaction of your students when they can see the work of other students posted? Did they find it helpful, or did they shy away from comparison?

5. Do you use logins passwords or other tools to restrict access to your course content online?

6. Have you ever let students contribute to the content on your site, by either posting something they found, or taking some of their world and adding it your course?

7. What kinds of multi-media content do you have?, audio ?(.wav files, MP3s) video? (MPEGs?)

8. Have you ever let the students be part of the creation of the multi-media files?

The respondents to the survey indicated (100%!) that they would like to be part of making multi-media content to build into the site. What do you think the consequences of this might be for your future work in building online course materials?

9. Have you had your online course content printed into a traditional book or booklet
form so students can use a hard copy for studying or making notes?

Thanks, Tim
Appendix C

Ethics approval from Brock University

DATE: March 15, 2005

FROM: Linda Rose-Krasnor, Chair
       Research Ethics Board (REB)

TO: Joe Engemann, Education
     Tim RICHARDSON

FILE: 04-325 - RICHARDSON

TITLE: The Effectiveness of Using Web-based Content and
       Hyper-linked Teaching Units in Teaching Hybrid Business and Marketing
       Classes at the College and University Level

The Brock University Research Ethics Board has reviewed the above research proposal.

DECISION: Accepted as Clarified

This project has received ethics clearance for the period of March 15, 2005 to June 01, 2005 subject to scheduled meeting. The clearance may be extended upon request. The study may now proceed.