THE EFFICACY OF A COURSE MANAGEMENT SYSTEM IN LEARNING:
PERCEPTIONS OF STUDENTS AND FACULTY AT ONE ONTARIO COLLEGE

by

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A thesis submitted in conformity with the requirements
for the degree of Doctor of Philosophy
Department of Theory and Policy Studies in Education
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Abstract

The widespread adoption of course management systems (CMSs) by colleges and universities has occurred in a vacuum of research into their effectiveness for learning. This case study is based on quantitative and qualitative data collected by survey, interview, and document analysis that explored the perceptions of students and faculty, regarding the impact on learning of the use of a CMS in the initial semesters of the business programs at a large, urban, multiculturally diverse college. This college has a long history of CMS use and a stable CMS infrastructure. This study explored the purposes for which the CMS was used, the characteristics of its use that enhance student learning and those that create barriers to learning, as well as the perceptions of students and faculty about what constituted the effective use of the CMS, in campus based courses.

While the students are not as technology adept as some of the literature claims, and the perceptions of the students do not always match those of the faculty; the findings of this study provide compelling evidence that, even though the use of the CMS at this college focuses on supporting the transmission of information, this is perceived by the students to be an integral part of their education. The greatest benefits to learning are the ways in which the CMS, when used effectively, facilitates access to and organisation of information, thereby helping the students to keep track of what they need to do to be successful in the courses. Over, under, or misuse of the CMS course sites is viewed by the students as a constraint to learning.
Even though on the surface it appears that the systems are being used solely to augment conventional practices, the use of the CMS has, in fact, added useful dimensions to the ways of teaching and learning. Implications for practice are discussed and a model for how the systems may be used to enhance learning by helping students to organise and keep track of information is presented.
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First and foremost, I would like to thank Dan Lang, my astute, kind, and understated thesis supervisor who patiently and carefully read draft after draft, answered my endless questions and listened as I pondered not only my research findings, but also, many of the dualisms of higher education. Dan has guided me with his profound wisdom; through our interactions I have had the privilege of experiencing the essence of education as captured by the aphorism of Mark Hopkins and the log.

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Father Bill Burns, our conversations at a time of much personal turmoil, as I grappled with the answer to your question “Who are you?” inspired me to undertake this journey of deep thought. Thank you for asking difficult questions and for helping me to put life’s happenings into perspective.

Thank you to all of my family and good friends for checking in on me, and for your encouragement during this journey. Your phone calls, email and msn messages often saved the day.

To the three most important people in my life, my children, Krista, Ben and Nick - thank you for all that you have taught me. It is my wish that the completion of this dissertation will serve as an example to you “to go confidently in the direction of your dreams....”

Finally, to my mother, Pamela Fernandes, who has been there for me at every critical moment - from the inception of the idea of my pursuit of a PhD to the final stages of writing my thesis. Thank you for believing in me as only a mother is able to, and for rescuing me with your faith and words of encouragement during all those times when I was filled with doubt.

My love of learning has deep roots; I trust that this is a beginning and not an end...
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Dedication

Dad,
This is dedicated to you!
You are the wind beneath my wings...

If I could be, even a smidgeon of the person that you were - then - I would have succeeded.
Chapter One:
Introduction

Overview

Course management systems (CMSs) have become a symbol of innovation at institutions of higher education and in less than a decade they have been rapidly adopted by a large number of colleges and universities in many countries around the world (Coates, 2005; Dutton, Cheong, & Park, 2004; Malikowski, Thompson, & Theis, 2007; Wise & Quealy, 2006). This rapid adoption of the CMS has occurred in a vacuum of research into their effectiveness for learning or even indications of best practices for their integration into the campus based environment (Coates, 2006; Malikowski et al., 2007; Wise & Quealy, 2006). In 2007, for the very first time, CMSs appeared on the list\(^1\) of the top-ten IT issues facing higher education information technology leaders, ranking ninth in the category of “issues of strategic importance” and seventh for “its potential to become more significant in the future” (Camp & Deblois, 2007). Camp and Deblois (2007) speculate that even though these systems are still just over 10 years old, this can be attributed to the evolution of CMS technology as a mission critical enterprise system and their “accelerating use as a critical teaching and learning resource by institutions of all kinds” (p. 28).

Ten years after the first commercial systems were made available to colleges and universities, many institutions of higher education are still struggling to determine the best way to support their educational missions with CMSs and other web technologies. The impact of these systems on higher education has not been discerned (Coates, James, & Baldwin, 2005, McGee, Carmean, & Jafari, 2005; West et al., 2006, 2007). There appears to be systemic

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\(^1\) The list is published by EDUCAUSE, a non-profit association whose mission is to advance higher education by promoting the use of information technology. (http://www.educause.edu).
misunderstandings about what CMSs really are, what they can deliver, and how to best integrate them into traditional campus-based courses (Coates, 2006). This research seeks to elucidate and enhance our understanding of the characteristics of the use of a CMS that affect learning, based on one comprehensive case study. The perceptions of students and faculty of the ways in which a CMS can be engaged appropriately in campus-based courses in order to improve the educational experience is the focus of this study.

Outline of This Chapter

This chapter is organised into nine sections: background, issue statement, purpose of the research, the rationale for the research, the research questions, theoretical framework, scope and limitations of the research, contribution to knowledge and definition of terms. The focus of the chapter is on describing the adoption and integration of course management systems in the broader context of the perceived role and impact of educational technology in higher education. It discusses the impact of the CMS on the educational environment and how these systems might be affecting learning and teaching. It questions how we can make the best use of these technologies and discusses the critical importance of understating how, when, why and under what conditions a CMS can be used for knowledge gain. The research questions section states the four research questions that are at the heart of this study. The theoretical framework discussion includes a description of the philosophy of learning and guiding principles of the research, and the value of studying perceptions of learning. The parameters and epistemological stance of this case study are included in the section on the scope and limitations of the study. Following a very brief description of the contributions of this study to the body of knowledge about the efficacy of the use of CMSs in learning, is a concise outline of the rest of the chapters
in this thesis. The chapter concludes with definitions of some of the terms that are applicable to the study.

Background

Educational Technology and Teaching And Learning

Kirup and Kirkwood (2005) judiciously state that the widespread adoption of information and communication technologies in higher education since the mid 1990's has failed to produce the radical changes in teaching and learning that many had predicted and anticipated. In the article “Why it has not paid off as we had hoped (yet)” Ayers and Grisham (2003) note that:

At each step along the way, some of the more impressionable among us thought that one innovation or another would push us over the top, that we had finally gained the critical mass that would channel the undeniable power of IT into higher education. We watched as commerce was transformed, as entertainment was transformed, as personal communication was transformed, and we kept waiting for the moment when higher education would be transformed in the same way.

In particular, we waited for the time when the very heart of education—the classroom and the scholarship taught in that classroom—would be transformed. But despite the tremendous investments that all institutions of higher education have made in IT, despite the number of classrooms we have wired and the number of laptops we have mandated, the vast majority of our classes proceed as they have for generations—isolated, even insulated, from the powerful networks we use in the rest of our lives. (p. 41)

Ayers and Grisham (2003) conclude the article by describing what they call the “doughnut IT infrastructure: all periphery and no centre” (p. 51).

Anecdotal evidence suggests that many educators agree that colleges and universities have invested heavily in machinery, in computers, computing systems and a plethora of hardware and software but not to the same degree in the scholarship and research to make the machinery work in the classroom. The potential of educational technology cannot be fully
measured until the hole as described by Ayres and Grisham is filled. Kirkup and Kirkwood (2005) stress that it is important to examine the use of technology in an analytical fashion, and “without prejudging against what enthusiasts say should be happening” (p. 185). The research on the effectiveness of educational technology is still in the developmental stage (Kopyc, 2006; Kvavik, Caruso & Morgan, 2004; Malikowski et al., 2007; Ungerleider & Burns, 2004; Zemsky & Massey, 2004).

The Adoption of CMSs in Higher Education

West, Waddoups, Kennedy, and Graham (2006) aptly surmise that it is surprising just how quickly the CMS has been adopted by institutions of higher education, which are usually known for their grip on traditional forms of teaching and for their reluctance towards change. Perhaps no other technology based innovation in higher education has resulted in such widespread use as the CMS (Coates et al., 2005; Coates, 2006; Danaher, Luck, & McConachie, 2005; Harrington, Gordon, & Schibik, 2004). While CMSs were initially developed to support distance education and online courses, they are now used predominately to complement campus based classroom courses (Morgan, 2003; Harrington, et al., 2004; West et al., 2006). Coates, James and Baldwin (2005) speculate that there appears to be something so alluring about them that despite their complexities and risks, almost every university seems compelled to have one. There appears to be a growing acceptance and use of CMSs, by faculty, and fewer concerns about their reliability, yet, little is known about the efficacy of these systems to impact learning. Research reports of significant changes in teaching and learning as a result of the use of these systems are scarce (Coates, 2004; 2005, 2006; Collis & van der Wende, 2002; Katz 2003; Harrington et al., 2004; Wise & Quealy, 2006).
Virtually every educational institution in Canada has adopted a CMS (Rossiter Consulting, 2006). Many of the systems are vendor provided products such as Blackboard, WebCT, Desire2Learn and Angel, but there are also a number of open source and institutional home grown products such as Sakai and Moodle. While the definition of a CMS varies, Carriere, Challborn, and Moore’s (2005) comparison study of a number of CMSs revealed that the only real difference among systems lies in their marketing approaches. Malikowski et al. (2007) characterize it as a comprehensive set of web based tools, some static and some interactive, that supports some or all aspects of course preparation, delivery, communication, participation and interaction. In the view of Carmen and Haefner, (2002), it is as a technology tool that supports and enhances the learning process, while Collis and Boer (2004) describe it as simply a way to help teachers who lack Web design skills to easily create a Web accompaniment to their courses. The CMS infrastructure can also handle course registration and administration (EDUCAUSE Evolving Technologies Committee, 2003, p. 1)

Who Are Our Learners?

Adding to the dilemma of defining the role of educational technology in teaching and learning and realizing its potential are questions related to exactly who our learners are and what it means to be educated for this generation. Oblinger & Oblinger, (2005), in a widely quoted book, claimed that the Net Generation learners (those born in the eighties and beyond) are technologically literate and generally have a different language of expression. It is postulated that because they have been exposed to multiple media from a very young age, and the number of hours they have spent watching television, videos and playing video games, they are more comfortable in an image-rich rather than a text-rich environment. They prefer to learn through exploratory active discovery and experience. They are social learners who gravitate towards
learning activities in which they can participate, preferably multitasking during these activities. They wish that a variety of media be employed in learning (Cameron, 2005; Caruso & Kvavik, 2005; Oblinger & Oblinger, 2005; Prensky, 2001; Tapscott, 1998). They value the use of technology in learning and view it as a tool with which to immediately and continuously connect with others and for convenience and control of their learning activities (Kvavik & Caruso, 2005; Lowersion, Selster, Schmid, & Adrami, 2006). The Internet is their preferred source of information (Cameron, 2005).

However not everyone agrees that, when it comes to learning, that this new generation of students is that different from its predecessors. Michael Gorman, dean of library services at California State University at Fresno and president of the American Library Association, doesn’t believe in the generalizations about this new generation. He posits that over and over educators have had notions about the need for colleges to change drastically to accommodate new crops of students. He questions whether students prefer predominately technology based learning experiences over traditional ones. This view is supported by a number of recent studies including one that was commissioned by the British Library and JISC (Joint Information Systems Committee) and conducted by the Centre for Information Behaviour and the Evaluation of Research (CIBER) at University College London (British Library & JISC, 2007). Although young people demonstrate an apparent ease and familiarity with computers, they also show a preference for only a moderate use of technology in their courses (Caruso & Kavik, 2005; Lohnes & Kinzer, 2005; Salaway, Katz, & Caruso, 2006; Salaway, Caruso, & Nelson, 2007).

**Issue Statement**

Camp and DeBlois (2007) propose that even though more than 90% of campuses support at least one CMS, with nearly 70% standardized on a single commercial CMS, and an increasing
number of faculty are using the CMS, information about the characteristics of the use of the CMS that enhance as well as those that create barriers to learning is fragmented and disparate (Hanson & Robson, 2003; Morgan, 2003; West et al., 2006; Wise & Quealy, 2006). Increasingly, colleges and universities are encouraging or requiring each subject to have some kind of web presence, and many have policies to encourage the use of these systems. Yet, as Collis and van der Wende (2002) concluded there is often a gap between vision and reality regarding the use of the CMS.

In spite of widespread levels of adoption and the potential of these systems to have a major impact on learning and teaching, attention is most often focused on their technical, financial and administrative aspects (Coates, et al., 2005). We need to better understand the influence on these systems on learning as they “influence student engagement and learning outcomes in ways that we do not properly understand – and should” (Coates, 2006, p.66). If there is no substantiation that using a tool for teaching and learning will result in positive learning outcomes this can create a barrier to the effective use of the tool (Coates, 2004; Kirkwood & Price, 2006). Innovators and early adopters were enthusiastic about the use of a CMS and saw it as valuable in its own right. Late adopters are less interested, they need evidence that it will improve their teaching and impact learning (Rogers, 2003). Providing faculty with appropriate frameworks for making choices about how the use of the CMS would or would not be apt for their appropriate teaching and learning goals is a fundamental aspect of its effective use. (Bates & Poole, 2003; Chee 2002; Collis & Boer, 2004). The research questions which this study sought to address need to be explored with both faculty and students so that institutions can make full use of the potential of these systems to enhance learning and obtain maximum benefit from their substantial CMS investments.
Examining the Impact of the CMS

The attractiveness of the systems is associated with the promise of enriched student learning. Yet, there appears to be a “tacit reliance on serendipity to produce patterns of use constructive for learning” (Coates, 2006 p. 5). Examining the impact of technology, or any other tool, on learning is difficult. Do textbooks help students learn? What about blackboards and chalk? A fundamental problem with studying the efficacy of any practice or tool in learning is that there are a wide range of variables that may affect learning; that is, what is done behaviourally, cognitively and motivationally by instructors and by students in the classrooms with technology and without technology. Pedagogical styles, abilities, personalities, cultures, and philosophies of learning all determine the way that any tool or teaching strategy is perceived both by faculty and students (Carmean & Haefner, 2002). Excellent or awful learning experiences can be designed both with technology and without it. Whether learning occurs or not, in particular classrooms, or with particular teachers will be determined by a range of interactions (Bryson & Hand, 2007; Grasha & Yangarber-Hicks, 2000).

As Spurlin (2006) notes, “as much as we’d like to ask what impact technology has on student learning, this question cannot be simply answered because technology interacts with many variables – student preparation and motivation, how the student or instructor uses technology, and how well the environment supports learning” (p. 6). He postulates that the way that technology is used does not cause students to learn better, but there is a correlation, a connection. Exploring this connection is critical in order to understand how the relationships among learners, learning principles, and learning technologies affect student learning. Over ten years ago Dearing (1997) in his report to the National Committee of Inquiry into Higher Education, emphasized that we should ask how technology can help students undertake the
various processes involved in learning, we should be “led by educational imperative and not by technology” (p. 13.2). This is what this study sought to do. This case study research explored the perceptions of students and faculty about the characteristics of the use of a CMS which enhance learning and those which create barriers to learning in one Ontario College.

**Purpose of the Research**

Given the commitment that has been made by the higher education community to CMSs, and the likelihood that they will increasingly play a major role in teaching and learning, the efficacy of the CMS in learning is an essential enquiry (Coates et al., 2005, McGee et al., 2005, West, et al., 2006, 2007). On paper, CMSs are described as supporting an extensive range of teaching and learning activities by allowing students to access a greater range of resources and materials, by providing spaces for online discussion, reflection, and collaboration, allowing access to customised and adaptive assessment and timely feedback and facilitating a host of class and user management functions such as registration, enrolment, displaying timetables and electronic office hours. A recurrent message arising from the study of educational technology is that it is not the provision of these features, but the ways in which they are used that determines their educational value. Yet, there is limited empirical research into the pedagogical impact of the CMS (Coates et al., 2005, Danaher et al., 2005; West et al., 2006, Wise & Quealey, 2006). With this in mind, the purpose of this research was to explore the efficacy of a CMS in learning as perceived by faculty and students participating in the study.

Kirkup and Kirkwood (2005) suggest that over the last 15 years the discourse about higher education teaching “has been couched in terms of transformation (of learning) and revolution in technology” (p. 185). Cox (2005), states, and it has been my experience, that the
potential of educational technology such as the CMS has taken on myth like status in conversations on campus, and these myths are used to guide and legitimize the colleges’ expectation and expenditure for the use of the CMS in campus based courses. Coates’ (2006) conclusion from his research is salient. He postulates that even though the impact of technology has fallen short of the rhetoric that it would produce radical change, widespread changes are penetrating campus-based undergraduate education, challenging practices and longstanding assumptions. Undoubtedly, changes in teaching and learning, facilitated by the new technologies have been considerably slower and less revolutionary than expected, but increasingly, large numbers of students are encountering interned based activities as part of their campus-based rather than distance learning experience. A number of researchers believe that the changes have been iterative and gradual and education technology, such as CMSs are enabling people to think differently about the ways in which higher education is conceptualized, designed, developed and delivered (Carmean & Haefner, 2002; Coates, 2006; Kirkwood & Price, 2006; Lauillard, 2002; Malikowski, et al., 2007). A theoretically driven understanding of the educational rationale and consequences of the use of the CMS is critical to understanding of the efficacy of these systems in learning.

I found no published study that specifically focused on exploring the impact of the CMS on learning as perceived by both faculty and students. Most of the prior research was aimed at testing how well the CMS works, demonstrating the added-value using a CMS when it is integrated into teaching and learning, or comparing the online with the face-to-face experience looking for a “significant difference” between courses that use a CMS and those that do not. The purpose of this study was aimed at understanding how, why, when and for what purpose the CMS affects learning. Exploring the perspective of the students was the primary focus and
central aspect of this investigation about the effect of a CMS on learning. Teaching and learning are inextricably connected; therefore obtaining the faculty’s perspective was an important, but secondary, part of the study. This study is grounded in the belief that learning is impacted by the context in which it occurs; given the dynamic, interconnected nature of learning, this cannot be studied in isolation. Case study research is thus ideal for this kind of context.

**Rationale**

Any system that is incorporated into everyday academic practices, such as this, shapes and even defines the beliefs, expectations and behaviours of students and teachers (Bryson & Hand, 2007; Lauillard, 2002; Vermetten, Vermunt & Lodewijks, 2002). The new conditions for learning made possible by technology, necessitates more thought, reflection and research about the impact of these tools. Do the students perceive that these tools add value to learning? How are faculty and students using the CMS? Which features and in what ways? Is it changing how people teach and learn? In what ways do these tools have a positive impact on learning and what are their constraints to learning? Are these systems being used solely to augment conventional practices, as some of the recent literature contends (Awidi, 2008; Lane, 2008), or have they added new dimensions to the ways of teaching and learning? Like many others, the college at which this study was carried out has invested a large amount of resources into purchasing and supporting the CMS and there is quite a bit of variation in how it is integrated into campus-based courses. This study was designed to better understand the benefits and challenges to learning, of the CMS as perceived by students and faculty.

Ironically, not many studies about learning examine the opinions of the students, not much is known about how CMSs are perceived by and affect students. It is increasingly
important that colleges and universities engage students in dialogue to better understand who their learners are and what their perspectives of learning are. What learning activities are in fact the most engaging for learners? In what ways can a course management system be used to create the conditions that enhance learning? In order to define the appropriate use of course management systems there is an urgent need to answer these questions based on research. This exploration of the use of course management systems is intended to contribute to the broader literature relating to the use of technology to advance scholarship in higher education. It forms a part of a continuing analysis of technology use and in particular the use of a course management system to enhance the classroom learning experience on college campuses. The ultimate goal of the research was to address whether, and under what conditions, course management systems, facilitate learning and or create barriers to learning.

Technology is now so embedded and ubiquitous in the lives of the students, in developed countries such as Canada that is of utmost important for us to figure out how it can be integrated and embedded effectively in the learning environment. Learners represent a rich array of different backgrounds and ways of thinking and feeling. Classrooms, both virtual and physical, should be amendable and sensitive to a whole range of approaches to teaching and learning. Learning is key to student persistence; students are more likely to persist and graduate in settings that foster learning. Institutions that are successful in fostering environments in which students are actively involved and engaged in their learning are those which are more successful in retaining and graduating their students (Tinto, 1993, 2002).

Even though the adoption rates, based on the number of faculty who make the CMS course sites accessible to the students taking campus based courses is high, at the case study college, most of the faculty using the CMS only make use of the basic tools. In 2005, faced with
an increase in the Academic IT portion of the fees that the students pay, the Student Federation Council (SFC) refused to pass the requested increase because it was their perception that the professors at the college were not using technology effectively for teaching and learning. When it was suggested to the students that the professors were using a number of different technology tools and not just the CMS, the discussions revealed that what they were most concerned about was that the faculty were not using the CMS course sites. They felt that the use of the CMS had a positive impact on their learning. Discussions with the IT coordinator of the SFC revealed that among a number of other features, the students valued the CMS for the standardized manner of the course sites. They were looking for consistency in how technology was used and they clearly wanted more of their classes to use the CMS. In 2005, the CMS statistics prepared by the Department of Information Technology and Telecommunications (ITT) showed that less than half of the faculty at the college were using the course sites.

By the fall of 2007, almost 75% of the professors in the School of Business, at the college where this study was conducted, were using the course sites in their courses. During workshops and at school meetings the professors at this college often questioned whether it was worth the effort to learn how to use and to integrate the CMS into their teaching practices. As I was responsible for facilitating the use of the CMS at the college, by designing and delivering workshops for, and working one-on-one with, faculty I was aware from CMS logs that, even though adoption was generally high, among the business faculty the use by the CMS by most of these faculty was basic. It focused on posting course documents, grades and announcements, sending email and to a lesser extent using the gradebook. Many of the interactive features such as blogs, wikis, chat and home pages were not used.
At the same time, the views of the SFC, my interactions with the students in the fully online, fully face-to-face and hybrid classes that I had been teaching since 2000, in which the CMS had been used, and with the students working in support roles at the Student Help Desks on campus, whom I mentored, revealed that the use of the CMS was highly valued by the students at the college. Given the very positive impact that the students perceived that the use of the CMS had on their learning, it is essential to develop guidelines for optimizing the use of the CMS in campus based courses in order to enhance and or facilitate learning.

While there is an extensive body of literature related to the adoption, diffusion and integration of technology, there is a paucity of research about issues related to the CMS and learning (Malikowski et al., 2007). Effectively integrating technology into learning and teaching is not a linear process and at any institution there will always be a spectrum of effective classroom integration of technology. Defining connections between teaching strategies such as the use of technology and learning is complex. Case study research is particularly effective in situations where it is difficult to control events and there is a high degree of complexity; such as the learning experience. Yin (2003) advocates that case study research is particularly effective when a “how” or “why” question is being asked about a contemporary set of events over which the investigator has little or no control. This description clearly fits this study where the aim was to find out how the use of a CMS impacted learning and why and in what ways it was perceived to have an impact on learning.

Research Questions

The purpose of this study was to explore how, when, why and under what conditions the use of a course management system affects learning as perceived by students and faculty. The contexts and the ways in which a CMS are being used in the classroom were examined and the
characteristics of a CMS that enhance learning as well as those that impede or create a barrier to learning were explored. The study also explored the expectations of students and faculty prior to the use of a CMS.

**Research questions:**

1. What do these students and faculty identify as the purpose of using a CMS within a college program?
2. What characteristics of a CMS enhance learning as perceived by these students and faculty?
3. What characteristics of a CMS impede or provide a barrier to learning as perceived by these students and faculty?
4. What are the perceptions of these students and faculty about the effective use of a CMS?

**Theoretical Framework**

The underlying premise of this research is that the integration of technology into learning and teaching does not necessarily enhance pedagogy; rather technology is an enabler that can provide new ways to enhance learning; if it is engaged aptly. This study is rooted in a “learning-centered” philosophy. The foundation of learning-centered education is the provision of meaningful learning experiences to facilitate, stimulate and enhance learning experiences for a diverse range of learners. The implicit assumption about the phenomenon of learning, guiding this study, is that it is a “complex, ubiquitous and powerful phenomenon influenced by a broad range of often mutually contradictory practices, paradigms and theories” (Coates, 2006, p.25). In order to structure the educational experience so that it adds value to learning careful attention
must be paid to “the knowledge, skills, attitudes and beliefs that learners bring to the educational setting” (Bransford, Brown, & Cocking, 2000, p. 133).

Much of the recent literature on teaching and learning in colleges is influenced by Barr and Tagg’s (1995) article, *From teaching to learning: A new paradigm for undergraduate education*, which discusses a shift from teacher-centered education and the sage on the stage to learner-centered education with the guide on the side. My viewpoint is a blend of constructivism and instructivism; it is grounded in the belief that learning is a complex, cognitive and social process that cannot be separated from the environment, the physical and virtual spaces, in which it takes place. Constructivism, embraces the concept that all learning is seen through the conceptual framework of the learner and new learning must be fitted into this framework (Gijbels, Van Der Watering, Dochy & Vand Den Bossche, 2006; Jonassen, 1999). Instructivism is grounded in the belief that there is value in instruction being directed by a teacher employing objectives and lesson plans related to an overall curriculum guide in order to teach specific content (Huitt, 2008). Within the constructivist paradigm, learning is inescapably affected by the context and the beliefs and attitudes of the learner. The aim of the constructivist is to provide learning environments that offer maximum learner control and learning opportunities that are meaningful to the learner (Gijbels et al., 2006; Jonassen, 1999; Lowerison, Sclater, Schmid, & Adrami, 2006); students’ perceptions of their learning environment are a powerful factor in learning.

As Keeling (2004) pointed out in the report *Learning Reconsidered: A Campus Wide Focus on the student experience* “few of the social, economic, cultural, political and pedagogical conditions and assumptions that framed the structures and methods of our modern universities remain unchanged.” The report goes on to say that “Learning is a complex, multi-centric activity
that occurs throughout and across the college experience” (p. 6). Learning is neither limited to what is formally taught nor to time spent in physical classrooms. It occurs whenever and wherever the learner interacts with the surrounding environment, in both in-class and out-of-class settings, both on and off campus (Keeling, 2004).

The well known educational philosopher John Dewey advocated that the traditional school environment impeded learning. Dewey’s philosophy influenced educational reform efforts for decades and was the basis of the Progressive Education Movement of the 1930’s. In the 1960’s the Humanistic Education Movement influenced by the work of Carl Rogers was the vanguard for educational reform. Many of the basic tenets of the learning college movement are rooted in the concepts of Humanistic Philosophy that defined the need to develop programs and learning experiences around the potential and the needs of the learner (Skolnik, 2000).

Technology and Learning

Terry O’Banion, the architect of the Learning College, views the effective use of technology by college teachers as an essential factor in achieving the goals of learning-centered education2. In colleges that place learning first, every decision and action revolves around learning and every person in the institution is forced to constantly ask two main questions: How will this impact learning? and How do I know (O’Banion, 1997)? It is crucial for teachers to be aware of how technology can enhance and enrich learning and teaching as well as provide opportunities for students that were never before possible on a large scale. The strategic uses of technology will not only enhance the learning experience but will also help graduates to be better

2 Information obtained during personal communication with Terry O’Banion on October 10, 2002.
prepared for the many and diverse needs of society (Daniel, 2003; Ontario Council of Universities (OCU), 2000).

The transition to learning-centered education requires educators to reexamine and transform current assumptions about the ways in which students are engaged in the educational process. The research increasingly highlights that one size does not fit all and that what is educationally effective for some students may not be so effective for other kinds of students (Bransford et al., 2000). Educators must strive to incorporate the best practices and philosophies of the past with the continually expanding knowledge base and the constantly evolving advances in technology. In order to put learning first everyone connected to the community college needs to reconsider his or her core beliefs about learning. The primary focus of learning-centered education is the creation of powerful learning experiences.

There is a tremendous amount of work involved in developing and designing quality learning experiences which incorporate these new and technologically enhanced approaches to learning. Even though there is no doubt about the contributions that technology can make to learning centered education much of the literature is devoted to discussions of the potential of information and communication technology and I found few references to exactly what can be achieved by using it. It is difficult to separate what is mythical from what is real. Indisputably, information and communication technologies (ICT) are valuable resources, but they are not the best resource for teaching and learning about everything. We are challenged to think broadly about ICT and their effects on teaching and learning and take a reflective view of technology remembering that it always involves both people and their social systems. It is vitally important to find the right balance between different elements of learning and the use of ICT to support and enhance those experiences while being cognisant of the ways in which they make create barriers
to the learning experience. As Coates (2006) emphasises, in order to understand the activities and conditions that engage students in learning and enhance their learning experiences, they have to be the primary focus in studies about learning.

**Student Perceptions and Learning**

There are a number of reasons why this study explored the perceptions of students and faculty to determine the efficacy of a CMS in learning. Entwistle and Ramdsen's (1993) research showed that the way that students perceive the teaching and learning contexts impacts their approaches to learning and the quality of the learning outcomes. The students' perceptions of their learning environments (which may differ from the reality) have a profound impact on the ways they approach their studies (Trigwell & Prosser, 1991). The work of Lowerison et al. (2002) indicates that there is value in exploring aspects of technology integration and the impact of these aspects on student perceptions of learning. Marton and Saljo (1976) postulated that there was a connection between the students' approaches to learning and the content of learning. He stressed that the approach to learning should not just be seen as a characteristic of the student, as it is a response to a situation. Entwistle and Ramdsen's (1984) research supported this and illustrated the strong influences of the situation in which learning takes place. One of the key variables in learning is the students' perceptions of what they are required to do. If students perceive that the learning environment that they encounter is effective, then they are more likely to be engaged and be successful (Entwistle & Ramsden, 1984). Mazarano and Pickering (1997) posit that the processes of acquiring and integrating, extending and refining and using knowledge meaningfully all occur against the backdrop of the students' attitudes and perceptions.
At the heart of higher education, is the transaction between the student, the teacher and the material being studied. Little attention has been paid to the process of student learning and the effects of not only teaching, but of the context in which the learning takes place. Students enter college with different interests, motivations, expectations, learning styles, past experiences and personalities. Individual differences in the college environment interact subtly and continuously, and a proper understanding of student learning needs to take this into account. It is the intent of this study that the exploration of the perceptions of students and faculty will elucidate the characteristics of the use of the CMS that affect learning.

The implicit assumption of most learning theories is that there is no simple recipe for designing effective learning environments. "A fundamental tenet of modern learning theory is that different kinds of learning goals require different approaches to instruction; new goals for education require changes in opportunities to learn (Bransford, et al., 2000, p.131). From a practical perspective, it is assumed that it is possible to identify activities and conditions that are linked with learning. It is the responsibility of colleges and universities to create the conditions that make learning possible, that provide the opportunities for learning, while the final responsibility of learning rests with the students. Chickering and Gameson (1987) list a range of pedagogically beneficial activities and conditions that also guide this study. Their seven principles focus on actions and conditions that can be brought about by faculty and by institutions and are the result of substantial theoretical and empirical research. These principles and the substance that underpins them guide this research. Good undergraduate education:

1. Encourages contact between students and faculty
2. Develops reciprocity and cooperation among students.
5. Emphasizes time on task.
6. Communicates high expectations.
7. Respects diverse talents and ways of learning

The purpose of this research is not to compare the impact of the use of the CMS in fully online courses with courses that are fully face-to-face, nor to evaluate the use of the CMS; as so many other studies have attempted to do. This is instead, an exploration to understand the impact of the use of a CMS on learning. Given the dynamic interconnected nature of learning, this cannot be studied in isolation from teaching or the context in which the learning takes place. Case study research is thus ideal for this kind of examination.

Coates et al. (2005) identified six specific drivers behind the introduction of an enterprise level CMS. These include: increasing the efficiency of learning; enriching student learning; student expectations of technology; competitive pressure between institutions; a means of providing greater access to higher education; and as a means to regulate and package pedagogical activities by offering templates that assure order and neatness, and facilitate the control of quality. Each of these factors is important and warrants further study, but it is the promise of enriched student learning through the CMS resources that this study focuses on.

Cognizant of the vast array of information on educational technology in the literature and noting that as Wise and Quealy, 2006 point out, that “there is nothing compelling in any of the literature to demonstrate enriched student learning attributed specifically to a [CMS] or [CMS] based resources that could not be imagined in another learning environment” (p. 50), this study is not aimed at evaluating the use of the CMS. The scope of this study is to explore and understand the characteristics of the use of a CMS that are perceived by faculty and by students to affect
learning. It is only by asking and listening to students and faculty that we will know what they perceive facilitates learning (Bryson & Hand, 2007).

**Scope of the Research**

Considering the rapid adoption by almost all institutions of higher education of CMS tools, there needs to be more thought, reflection and research about what their impact might be. Educational technology offers opportunities for creating new and significantly different educational applications. It is important to understand the connection between particular forms of technology and their effect on teaching and learning so that a conceptual rationale for using it to enhance learning can be developed. How well do institutions really understand the effect of the CMS on learning at their college or university? Why are the students and faculty using these systems? Which features and in what ways is the use of a CMS most beneficial to learning? This study is designed to increase our understanding of the role of the CMS in the creation of new educational environments and the ways in which they affect learning. Its scope is limited to exploring the perceptions of students enrolled in the first year of the business programs and faculty teaching those students at one Ontario college.

**Parameters of the Study**

Like many other colleges, this college has invested a large amount of resources into purchasing and supporting the CMS. The use of the CMS is strongly encouraged by the administrators at the college and it is embedded in the college’s eLearning Plan. In spite of the positive perceptions of the CMS by the students, and the push by the Student Federation Council for more faculty to use it, and for those using it to do so effectively, there was much skepticism on campus about its impact on learning. This study was designed to aid in the understanding of
the effects on learning from using this technology in the campus based courses, as well as to provide some ideas for how the integration of the CMS into learning and different instructional contexts can be enhanced.

Epistemological Stance

The study is both enriched and limited by my experience with the use of technology to facilitate learning and by my familiarity with the case that is used in this study. A key aspect in this study was the analysis of not only the findings of the study, but also of the information ascertained during the literature review and from my past research experience, that was not found in the study. My in-depth knowledge of the case allowed me to maximize the opportunities for collecting and producing meaningful information about the adoption and integration of the CMS through interviews with students, faculty and CMS advisers, surveys of students and an analysis of college documents. The study, like all case study research, is also limited by my personal biases. My close association with the college may have caused me to miss opportunities, overlooked because of familiarity with the situation. I have attempted to create objectivity in my research by discussing the design, process and outcomes of the study with colleagues at other colleges, by sharing the preliminary research findings and inviting feedback and discussions about my perspectives at two conferences, one that focused on the first year learning experience and another about the use of technology to advance learning at Ontario colleges. In addition, as described in detail in Chapter Three, triangulation of the findings was an important element in the design of the study.

In addition to my research interest in learning in virtual spaces, understanding all aspects of the student experience is of primary importance and fundamental to guiding my philosophy of
education. As noted by Tinto, 2002, an extensive body of research identifies the conditions within institutions that best promote student persistence and ultimately student success, in particular during the student’s first year at college. Tinto, 2002, emphasises that if institutions are serious in their pursuit of student persistence: and success then they must carefully consider the conditions in which they place the students. He affirms that there are five conditions that promote persistence, expectation, advice, support, involvement and learning. He states that most importantly, students are most likely to persist and graduate in settings that foster learning. It is the intent that the findings of this study will contribute to elucidating some of the characteristics of the learning environment that facilitate learning and enhance student persistence and success.

Limitations of the Research

As this research focuses on the students enrolled in the first year of the three year business programs and the faculty teaching in the three year business programs at one, large, urban, multiculturally diverse college in Ontario, there are several limitations to the study. First it may not reflect the reality of the efficacy of a CMS in learning in other colleges or programs of study at the same or other colleges. The characteristics of the use of the CMS that enhance and those that create barriers to learning may not be applicable to all uses of the CMS as this study only investigates its use in campus based courses.

One of the most important variables that impacts the perception of the use of the CMS, as identified in the literature reviewed, is the stability of the system. One of the deciding factors in the choice of the case used for this study was the stability of the technology infrastructure supporting the CMS. West, et al. 2006 concluded that issues with the stability of the CMS, result in very negative perceptions about its effect on learning. It is likely that if this study had been
carried out at a college where the CMS infrastructure was not as stable as at this one, the findings from the study may have been different.

Another limitation of this study is that learning is a complex, interconnected process, influenced by a variety of variables, inherent to the context in which the learning is taking place. As such, there is no attempt to generalize the findings of this study as all the variables impacting learning cannot be controlled or fully described.

**Contribution to Knowledge**

The perceptions of the students and faculty about the purposes of using a CMS, the characteristics of its use that enhance learning and those that create barriers to learning, and their perceptions about the effective use of a CMS, can be used to establish standards of good practice around the use of a CMS in campus-based courses. They lend insight to the usefulness of a CMS in improving the learning experience and elucidate some of the conditions that learners perceive to be integral to learning in this information age. It is hoped that the findings will stimulate debate surrounding the best practices for using a CMS to compliment campus-based courses and assist colleges in responding to the challenge of effectively integrating CMSs into academic practices to increase the relevance, scope and efficacy of students' educational experience. The study identifies how the use of a CMS augments and complements rather than substitutes campus-based classroom activities, and sets some parameters that are worth considering in the complex process of adoption and integration of a CMS.

**Summary**

Ten years after the first commercial CMSs were made available to colleges and universities we are only now beginning to understand the impact of these systems in higher
education. Appropriate frameworks for making choices about how the CMS would or would not be appropriate for particular teaching and learning goals is essential. As Bransford, et al. (2000) so aptly noted in their book “How People Learn: Brain Mind, Experience, and School:

The use of new technologies in classrooms, or the use of any learning aid for that matter, is never solely a technical matter. The new electronic technologies, like any other educational resource, are used in a social environment, and are, therefore mediated by the dialogues that students have with each other and the teacher. (p. 143)

They go on to explain that:

Like a textbook or any other cultural object, technology resources for education – whether software, science simulation or an interactive reading exercise – function in a social environment, mediated by learning conversations with peers and teachers. (p. 230)

It is to this dialogue and learning conversations about the use of the CMS in campus based courses, that this research will contribute.

The elucidation of the characteristics of the use of a CMS that enhance learning as well as those that create barriers to learning may guide the effective integration of a CMS into campus based courses. Using a case study analysis, of the students in the first year of the three year business diploma programs and the faculty teaching in the three year business programs, the thesis explored how, when, why and under what conditions the use of a CMS affects learning as perceived by these students and faculty. A case study design is used for this research to gain an in-depth understanding of the use of the CMS and the perception of its use on learning for the students and faculty who use it in the three year business diploma programs at the college where the study took place. It is the intent that the insights gained from this study will influence guidelines about the use of the CMS, the ways that it is integrated into campus based learning and future research about the use of technology and learning.
Outline of the Rest of the Chapters

This thesis is written in six chapters. Chapter Two reviews the literature on educational technology and course management systems. It also explores some of the latest research on the impact of technology on learning and the value of studying perceptions of learning. Chapter Three provides a detailed description of the research methodology. Chapter Four presents the findings of the research. In Chapter Five the findings are analysed based on the research questions and describes some of the findings not related to the research questions that provide valuable insight into the efficacy of a CMS in learning. Chapter Six brings the thesis to a close with implications and conclusions based on the findings of the study.

Terms and Definitions

**Campus based or traditional learning** is defined as learning that takes place in a face to face setting that is time and place bound and consists primarily of a lecture and note taking model. This also includes seminars, tutorials, labs and studios.

**Course Management System (CMS)** - also referred to in the literature as a learning management system or a virtual learning environment, is defined as a software system that is specifically designed for use in teaching and learning. The systems vary in their complexity and include tools for course content organization and presentation, communication and student assessment, as well as a gradebook and functions that manage class materials and activities. The abbreviation CMSs will be used to refer to course management systems.

**Distance Learning** is defined as any learning experience in which all of the teaching is conducted by someone who is separated by space and/or time from the learner. Communication
occurs entirely either in print or electronically. In recent years distance learning is used almost exclusively to mean that the learning occurs in a technology (Internet) based environment.

**Educational technology** - also known as or referred to in the literature as e-learning, instructional technology, learning technology or just “technology”, is the use of technology to support the practice of teaching and the process of learning. Although the term can refer to several types of technologies, such as, photographs, film, video, audio recordings etc., it is now commonly used in education to refer specifically to digital computer technology and in particular the Internet based information and communication technologies.

**e-Learning** (Rossiter, 2006) – the development of knowledge and skills through the use of information and communication technologies (ICTs) to support interactions for learning – interactions with content, with learning activities and tools, and with other people.

**Online learning and web-based learning** will be used interchangeably throughout this study and is defined as any learning experience which is facilitated by the use of Internet based technology tools.

**Net generation or digital natives** are defined as the students, generally those born after the early 1980’s, who have grown up in an environment (school, home and social) in which technology has been an integral part, they expect technology to be a part of their learning experience
Chapter Two:
Literature Review

Technology and Higher Education

There is an abundance of literature that extols the virtues of many various forms of educational technology and their potential to revolutionize education, in particular teaching and learning. There is much discussion about the potential of technology to transform learning and revolutionize learning environments (Carmean & Haefner, 2002; Haddad & Draxler, 2002; Kirup & Kirkwood, 2005; McGee et al., 2005; Oblinger & Oblinger, 2005). However, there remains a considerable sense of unfulfilled potential among the higher education community, and examples of wasted effort and disappointing results abound (Bundy, 2004; Noble, 2002; Masiello, Ramberg, & Lonka, 2004; Zemsky & Massy, 2004). The faculty and student experience with technology varies widely (Higher Education Funding Council for England (HEFCE), 2005). In many cases institutions have invested in educational technology and then tried to generate usage. They have configured sophisticated “wired” classrooms, purchased course management systems with an array of tools, and added expensive and extensive digital collections to their libraries. Then they have watched and waited patiently for faculty and students to use these tools (Ayres and Grisham, 2003). Too often the technologies have been introduced in the classroom with little or no consideration as to how this will enhance the learning experience (Coates, 2006; HEFCE, 2005; Kirkwood & Price, 2006; West et al., 2006; Wise & Quealey, 2006; Zenios, Goodyear & Jones, 2004).

During the last decade there has been a rapid evolution of educational technology, yet institutions are still struggling to effectively incorporate technology into the core practices of teaching and learning (HEFCE, 2005, Malikowski et al., 2007). Laurillard (2002) affirms that the
effective use of education technologies requires a rethinking of university teaching. She maintains that one of the key reasons why their potential has not been realized is because they “demand effort and ingenuity” (p. 199) in order to be effective in enhancing learning. They also require a dramatic shift in perspectives of learning (Dringus, 2002).

The disparate views on educational technology in the literature evoke the question of what is really happening with the use of educational technology in higher education (Bates & Khasawneh, 2004). For what purposes and in what contexts is technology suitable for learning and teaching? What do we need to do to ascertain that when we use technology for teaching and learning that we use it effectively for student learning (Bates & Poole, 2003, Caruso, 2006; Kirkwood & Price, 2006; Lightfoot, 2005; Spurlin, 2006)? How will the quality of student learning benefit from the use of technology in the classroom (Chee, 2002)? The successful integration of technology in the classroom is critical to realizing its potential, yet, even though there are many descriptions of strategic options for integration, there are no clear models of what this means in practice (Coates, et al., 2005; Danaher et al., 2005; Hughes, 2001; Malikowski et al., 2007).

Educational technology was seen by many as a magical device, the panacea to solve all of education’s problems (Laurillard, 2002; Rose, 2004; Van Dusen, 2002; Zemsky & Massy, 2004). Despite the fact that technology has become more available and affordable than ever before, and there is a vast array of tools to choose from, some educators believe that little change has occurred in the way that teachers teach and students are expected to learn. In the widely publicized report for the Weatherstation Project of the Learning Alliance of the University of Pennsylvania “Thwarted Innovation: What happened to e-Learning and Why”, Zemsky and Massey (2004) advocate that educational technology and e-learning have not delivered on the
promise of revolutionizing the classroom. They propose that not much benefit has been gained from the investment in educational technology. Regardless of whether one agrees or disagrees with the title of the report, the merit of the report lies in the fact that it points out some major hurdles that educational technology will need to overcome before it is fully integrated within the academic world. Heeding these criticisms, it is important to take another look at the use of educational technologies in education. Universities and colleges continue to search for effective ways to use these tools in the classroom (Albright, 1999; Baljej, Beck, Dawson, Jinks, DiPietro, 2007; Coates et al., 2005; Coates, 2006; Duderstadt, 2004; Jones, 2002; Kvavik et al., 2004; Rose 2004).

The opportunities for learning at a distance, provided by Internet based technologies, have not prompted a mass exodus of students from traditional campuses to participate in distance learning, as was predicted (Haddad and Draxler, 2002; Levine & Cureton, 1998). Jones' (2002) study of the use of the Internet by college students found that even though many students have a positive attitude towards the use of the Internet in their academic experience, there was very little interest in abandoning the classroom to take classes online. However the widespread adoption of course management systems has resulted in a significant number of campus based courses having an online component. To facilitate the effective integration of these CMSs in campus based classes there is an urgent need to understand how campus based students engage with the online aspects of their education (Abel, 2005; Lightfoot, 2005; Coates, 2006; Papastergiou, 2007).

Enhancing the quality of teaching and learning is often stated as the key driver for the integration of technology on campus (Council of Ontario Universities (COU), 2006; Coates, 2006) but this does not appear to be reflected in practice (Coates et al., 2005; Danaher et al.,
Zenois, Goodyear, and Jones (2004) examined 62 project teams in the largest learning technology development program in tertiary education in the United Kingdom and found that few technology projects make explicit reference to student learning. Their study revealed that for the majority of projects “there is an assumption that the use of networked technologies will lead to definite educational outcomes and possibly change practice in higher education simply by making resources available to students” (p. 211). Only three of the projects had a pedagogical rationale. They concluded that there is no clear vision for enhancing learning with technology.

**Educational Technology Tools**

The range of educational technology tools is immense. There is a vast selection of hardware, software and peripherals. Email, presentation software, content ware, course management systems, the World Wide Web, multimedia CD-ROMs, DVDs, videos and MP3s, video and or audio conferencing, synchronous and asynchronous discussion forums, wikis, blogs and podcasting, simulations, games and automated testing systems capable of sending immediate feedback, are all part of the education technology repertoire. Computer labs, networked classrooms, wired campuses, laptops, desktops, cell phones, ipods, personal digital assistants, personal media assistants, cameras, and a host of other educational software applications can be found on campuses everywhere (Haddad & Draxler, 2002).

There are many powerful tools described in the literature as having the potential to vitalize and enhance teaching and learning. They create innovative possibilities for the enhancement of learning opportunities and enable new choices (Albright 1999, Haddad & Draxler, 2002; HERDC, 2005; Lightfoot, 2005; Twigg, 2001). A number of educators ascertain that the communication technologies have the potential to make a very significant contribution to
the learning experience (Albright, 1999; Buckley, 2002; Laurillard, 2002; Mishra & Koehler, 2006). Rich, individualized and interactive environments where diverse learners are engaged and can dictate their pace and place of learning is the potential that education technology offers (Lightfoot, 2005).

Dazzled by the promise and potential of these tools, but at the same time confused about which technology to use and for what particular purpose, and with no clear models to follow, the "Is Technology Worth It?" question continues to dominate discussions (Butler & Sellbom, 2002; Kagima & Hausafus, 2001; Ungerleider & Burns, 2003; Wise & Quealy, 2006). The question of technology effectiveness requires us to think about the learning outcomes that are to be achieved and then to determine what, if any, are the best educational technology tools for supporting these outcomes (Bates & Poole, 2003; Haddad & Draxler, 2004; Hokanson & Hooper, 2004). Unfortunately, some advocates of new educational uses of technology over ardently compare them with more traditional teaching approaches, claiming to offer clear-cut choices of which is right and wrong. There is unquestionably a range of teaching and learning, from very traditional and lecture based to fully technology based with many different mixes in between (Bates & Poole, 2003; Kirup & Kirkwood, 2006; Wise & Quealy, 2006). The challenge is to take the available technology, the content, the learner needs as well as the context, and to blend them to provide the best combination to enhance teaching and learning (Bates & Poole, 2003; Coates, 2004; Laurillard, 2002). To effect a true educational transformation, current practices must be challenged, bearing in mind that technology should never drive what is done (Coates et al., 2005; Mishra & Koehler, 2006). It should however drive us to change, to think of the possibilities and to reconsider the learning experiences in the classrooms of the 21st century (Coates, 2004; COU,

So many previous innovations in technology have not delivered the benefits that were promised because the focus has been on the acquisition of the technology and the infrastructure and in the replication of passive learning practices (Chee, 2002; Coates, 2006; Rose 2004;).

There is a strong message in the literature that educational technologies are powerful tools with the potential to enhance many different facets of education and in particular many aspects of learning (Bates & Poole, 2003; Haddad & Draxler, 2002). At the same time it is emphasized in the literature that the mere introduction of technology into the educational process does not improve the learning experience (Coates, 2006; Coates et al., 2005; HEFCE, 2005; Kirkwood & Price, 2006; Lightfoot, 2005; Mishra & Koehler, 2006; Rose 2004). The recent literature indicates that regardless of this, many institutions continue to push for adoption without policies and strategies to guide the effective integration of these tools into educational practice (Coates, 2006; HEFCE, 2005; Gijbels, Van De Watering, Dochy, Van Den Bossche, 2006; Malikowski et al., 2007). Teachers continue to think primarily about delivering and storing content and resources and communicating via email when considering how and why to use technology in the classroom (Rose 2004; Kirkwood & Price, 2006; West et al., 2006;). Despite claims that these technologies are making important inroads into classroom and learning activities (Haddad & Draxler, 2002) it is difficult to discern their impact (McCombs, 2000; Coates, 2006).

Technology should only be included in the classroom if it augments and enhances those educational components that are known to be effective. The dilemma is to resolve which technology to use, and for what purpose, and which to ignore (Chee, 2002; Lightfoot, 2005; Song, Singleton, Hill, & Koh, 2004). The research on the effectiveness of educational technology
is still in the developmental stage (Hooper & Hokanson, 2004; Ungerleider & Burns 2004; Zemsky & Massey, 2004). The aim should be to promote research that focuses on student learning, and not, as much research has done in the past, on technology developments, in order to determine how to enable students to be supported by, and learn through, technology (COU, 2006; HEFCE, 2005). The potential of information and communication technologies to provide innovative learning opportunities and significant advances in the research about how people learn, provide us with compelling reasons to rethink and redesign the structures of education and in particular how we teach and learn (Bransford et al., 2000).

The debate about what constitutes the effective use of technologies continues to happen on almost all campus (Concannon & Campbell, 2005). It is increasingly important that colleges and universities engage students in dialogue to better understand who today’s learners are and what their perspectives are (Cameron, 2005; Kirkwood & Price, 2005). What learning activities are in fact the most engaging for learners? In what ways can education technology be used to make learning more successful? What does “effective” mean in the phrase effective learning environments? In order to define the appropriate use of technology, there is an urgent need to answer these questions based on research and not just on descriptions from the literature.

**Course Management Systems (CMSs)**

Course Management Systems (CMSs) seem to be the education technology tool that have been the most widely deployed within higher education (Browne, Jenkins, & Walker, 2006; Caruso, 2006; Dutton, Cheong, & Park, 2004; Jafari, McGee, & Carmean, 2006). They add a virtual dimension to the campus based learning experience, in addition to being used to deliver distance education. There are predictions that CMSs will have profound effects on the core
educational and business activities of institutions of higher education but to date there is no clarity of purpose regarding the role of CMSs in the framework of teaching and learning (Coates 2006; Coates et al.; 2005; Danaher et al., 2005; Hanson & Robson, 2003; Wise & Quealy, 2006).

The most commonly used commercial products are Blackboard, WebCT, Desire2Learn, First Class, Top Class, and Learning Space. In Canada, the United Kingdom, the United States and Australia over 70% of institutions hold licenses for one of these products. In recent years a number of universities have also created their own home grown systems and then made them available through open source rather than commercial licenses. These include Moodle, Sakai and CourseWork (Coates et al, 2005). These systems are described as having the ability to support and enhance a wide range of teaching and learning activities (Katz, 2003; Dutton et al., 2004; Danaher et al., 2005; Coates, 2006; Iredale, 2006). A CMS “provides an instructor with a set of tools and a framework that allows the relatively easy creation of online course content and the subsequent teaching and management of that course including various interactions with students taking the course” (EDUCAUSE Evolving Technologies Committee, 2003, p.1). Some of the components of these systems include:

- Content authoring and assembly and delivery tools that facilitate the availability of greater breath of information about course topics;
- Asynchronous and synchronous communication tools including announcement areas, email, chat, discussion boards, list servers and instant messaging, which aids in the facilitation of feedback from teachers and collaboration between students and teachers and among students;
• Formative and summative assessment tools where tests and resource banks can be stored and distributed;

• Class and user management functions that allow for the direction and facilitation of the learning process by providing tools for enrolling users, displaying timetables and calendar items as well as for monitoring student access and progress;

• A means to enable adaptive release of content to guide the learning process.

There are as well a number of other functions that can be incorporated into these systems as add-ons, including access to plagiarism checking software, blogs, wikkis and podcasting.

Access, cost, and quality are the three commonly stated reasons for the diffusion of educational technologies across campus worldwide (Daniel 2003). The same is true for course management systems; they offer a means for increasing the efficiency of teaching, and for delivering large scale resource based learning programs, and it has been argued that they offer colleges and universities new economies of scale (Coates et al., 2005; Katz, 2003; West et al., 2007). Key drivers of these systems are the technology expectations of many students, and the culture shift in teaching and learning that is taking place on most campuses in an attempt to incorporate the web based technologies into the campus based classroom experience (Coates et al., 2005; Dringus, 2002; Jafari et al., 2006; Katz, 2003). While advocates of these systems have outlined many positive aspects of their integration into teaching and learning, others have outlined a number of potentially troubling issues (Bates & Khasawneh, 2004; Danaher et al., 2005; Katz, 2003).

Hanson and Robson (2005) postulate that there are two categories that the benefits derived from course management technology fall into: "improving learning (providing more
effective education) and gaining efficiency (increasing student and faculty productivity)” (p. 3.). They also note that these benefits are interrelated as reducing time on administrative tasks has the potential to positively impact learning.

CMSs also provide institutions with a way of regulating and packaging the content of courses by offering templates seen as providing a means to facilitate the control of quality. Some fear that academic independence and autonomy in the teaching and learning process may be compromised by the use of these systems (Coates et al., 2005). The value of a CMS is often ensconced in language of management and control concepts that most academics would view as antagonistic to the learning experience. In a recent report Wise and Quealy (2006) state that in their view “the educational significance of a LMS is largely overemphasized and misunderstood”. Some educators question the very use of a CMS in an educational setting (Iredale, 2006). Both critics and advocates outline the need for spirited and broadly focused discussion and research on the use of CMSs in higher education (Katz, 2003; Coates et al., 2005; Coates, 2006; Iredale, 2006; Jafari et al., 2006).

The lecture format has been the most frequently used method of teaching, and this long established paradigm is the key influence shaping the introduction of CMSs into institutions of higher education. Most of the use of CMSs is anchored in traditional teaching approaches (Dutton et al., 2004; West et al., 2007). The current most popular use of CMSs at colleges and universities is to make documents available anywhere and at anytime. This merely replicates the practice of delivering information, by just changing the delivery mechanism (Coates 2006; Dutton et al., 2004; West et al., 2006). Faculty are using CMSs mainly for the convenience in managing course loads. The standard tools provided within a CMS; discussion boards, customization of course sites, group pages, peer review, digital assignments, gradebook and
timely announcements; are not being used to their fullest capacity and are often unused. For the most part courses have stayed the same (Jafari et al., 2006).

Knowledge about CMSs and about e-learning platforms in general is fragmented and disparate so the implementation of these systems has been done with little attention paid to principles of learning (Wise & Quealey, 2006). Bates & Khasawneh (2004) suggest that a science of e-learning is yet to evolve and until that happens many of the questions surrounding how to effectively use these systems to enhance learning will remain unanswered. There is no general understanding of the students use or attitudes towards these systems. Some literature suggests that the students view many educational technology tools as an integral part of the infrastructure rather than as a tool to enhance learning (Cameron, 2005; Coates et al., 2005; Oblinger & Oblinger, 2005). A recurring message in the literature about educational technology is that the provision of features does nothing to enhance education; what is important is the way in which the technologies are used (Chee, 2002; Bates & Khasawneh, 2004; Dringus, 2002; Hanson & Robson, 2003; Kirkwood & Price, 2006; Lightwood, 2005).

**CMSs in Teaching and Learning in Higher Education**

The rapid implementation of CMSs as a key tool for teaching and learning has occurred in the absence of empirical research as to its efficacy in enhancing learning. The questions regarding the features of these systems that truly support teaching and learning remain unanswered (Coates, 2006; Dutton et al., 2004; Hanson & Robson, 2003; West et al., 2007). The factors for transforming teaching and learning with technology are complex (Bates & Poole, 2003). Changing the culture of teaching and learning with the integration of education technology is an unpredictable and messy process and there are no easy solutions to the
dilemmas faced by administrators, faculty and students (Kirkwood & Price, 2005). Generally CMSs are being used to transfer the traditional classroom practices to the Internet (Lightfoot, 2005; West et al., 2006), thereby just extending the instruction paradigm of teaching (Barr & Tagg, 1995). As CMSs become more integrated into campus based education two of the fundamental steps in achieving meaningful use of this technology are an understanding of the ways in which it might be used to enhance learning and the aspects of its use which impede learning (Concannon & Cameron 2005; Hanson & Robson, 2003).

**Students and Technology**

Adding to the dilemma of defining the role of educational technology in teaching and learning and realizing its potential, are questions related to exactly who the learners are and what it means to be educated for this generation. The learners have changed, the skills demanded of graduates in the workplace have changed, educational options have changed (Jafari et al., 2006). Oblinger and Oblinger, (2005) and Tapscott (1998) advocate that the Net Generation learners (those born in the eighties and beyond) are technologically literate and generally have a different language of expression. This change in student demographics is often stated as one of the key reasons for incorporating technology into learning environments (Concannon, 2005; Prensky, 2001; Tapscott, 1998). In addition, to the digital generation of students, there are many “non traditional” or mature students attending colleges and universities. Unlike their younger counterparts these students may not have experienced technology in their earlier education and may not possess the skills required to make use of the computer and Internet-based learning resources (Dearnley, Dunn, & Watson, 2006).
Some studies caution that there is an increasing danger of erroneously assuming that students already possess the necessary skills and experience to effectively learn from these new technologies (Bates & Khasawneh, 2004). Many students are only accustomed to being taught in a passive transmissive way, in which information is delivered, and they do not have the skills required for the self directed learning an online environment requires (Kirkwood & Price, 2006). There are reports that campus based students are in some cases struggling to meet the course demands and the increased use of technology adds to this dilemma (Bates & Khasawneh, 2004). Institutions have made massive investments in education technology infrastructure based on assumptions that this is what the students want. This has been a precarious endeavor because as Kirkwood and Price (2006) point out, using technology in the classroom because it reflects changes in society, and maybe because it might address the needs of the diverse study body, is a very flawed practice. They emphasize the urgent need for an evidence based approach grounded in research. Wise and Quealy, 2006, support this view and speculate about the relevance of reports of students’ expectations of technology and how that relates to their capacity for learning in the context of higher education. They caution that “the mere fact that someone voices an expectation about something should not by itself be posited as a sufficient justification for the need to meet the expectation” (p. 48).

The 2005 Report from the Educause Centre for Applied Research details the students’ perceptions of the technology skills that they have, how they use them, and the benefits that they believe result from its use in education (Caruso & Kvavik, 2005). It is emphasized in this report that the students’ value involvement with faculty and other students, and this overrides their desire to use technology. Participation in traditional classroom formats is still considered an important experience by all students. This is a significant finding as it may indicate that the
cultural context of higher education may actually constrain the impact of CMSs (Dutton et al., 2004).

Smith and Potoczniak (2005) affirm that using any technology in the classroom can be a double edged sword. If properly implemented, technology can enhance students' learning experiences, but if used excessively it can impede the learning process by causing passive behaviour towards the subject. Students in online learning experiences need to be prepared for independent, self paced learning. This usually requires a shift in the learning model that students are familiar with (Al-Bataineh, Brooks, & Bassoppo-Moyo, 2005; Dringus, 2002).

Technology Enhanced Model for Learning

Theoretical shifts in learning perspective and the incorporation of technology into education have resulted in a shift in the way that teachers and students interact, not only with content, but also with each other. In order to meet the needs of this digitized society, the core processes of institutions, which have been in place for centuries, have shifted. As Twigg (2001) notes, the way in which we view and learn about the world has changed and the assumptions that help us understand and/or predict behaviour must therefore change. Many of the younger students find the interactive and graphical nature of the online tools appealing. Active learning experiences are far superior to passive ones (Barr & Tagg, 1995; COU, 2006; Papastergiou, 2006). A web based learning environment provides a self paced, time and place independent environment for learning, which when grounded in pedagogy and properly designed, fosters the development of written communication, critical thinking, problem solving and the opportunity to work collaboratively (Concannon & Cameron, 2005; Coates, 2005). As CMSs bring new structures and practices to teaching and offer a new model for designing learning experiences, it
is predicted that they will significantly affect student learning (Laurillard, 2002; Katz, 2003; McGee et al., 2005). Dringus (2002) notes that to succeed, in an online learning environment, learners “must make a dramatic shift in their perspective towards learning” (p. 89). He cautions that the approaches, responsibilities and attitudes necessary to succeed in traditional campus based courses shift when an online component is added to the learning experience. The ramifications of this are only in the early stages of study (Smith & Potoczniak, 2005; Coates et al., 2005). The innovative approaches to teaching and learning made possible by technology require us to challenge the current systems of learning in order to realize the potential that technology holds to transform learning environments and improve learning (Mullinix & McCurry, 2003).

As technology has evolved so has the understanding that web based learning is different from face to face learning (Moore, 2005; Coates, 2006). Too often it seems that technologies have been introduced into teaching with little or no consideration of the implications for learning (Harrington et al., 2004; Kirkwood & Price, 2006). There has been an overabundance of studies comparing face to face learning with distance learning. Russell (1997) published a compendium of more than 350 research studies that showed that there was “no significant difference” between face to face courses and technology based courses. This study has frequently been cited as the rationale for supporting online education and to illustrate its effectiveness, but other researchers (Twigg, 2001; Ramage, 2002; Moore, 2005) question the significance of the “no significant difference” research. Instead of comparison research, what is needed is an examination of how and why we can use technology to enhance the learning experience for students (Coates, 2006; Harrington et al., 2004; Kirkup & Kirkwood, 2005; Kopyc, 2006; Moore, 2005; Moss, 2006).
Often the literature has focused on describing strategies for increasing technology use rather than on investigating how learning can be enhanced by the use of technology. This is a fundamental distinction (Coates, 2006; Ehrmann, 1995; Moore, 2005). More than a decade ago Ehrmann (1995) cautioned that it was not the use of technology that mattered, but how it was used, and how the students use of technology promoted positive differences in the students' education. He challenged educators to learn as much as they could about the impact of technology on the way students learn (Coates 2004; Dringus, 2002; Moore, 2005; Smith & Potoczniak, 2005).

Ramage (2002) reviewed a number of studies related to the efficiency, effectiveness and appropriateness of online learning and concluded that there is no evidence to suggest that technology does not impact learning in some way, positively or negatively. This study is used in support of using technology in the classroom, yet, there are many fundamental questions about technology-based learning that remain unanswered (Oh, 2003; Wise & Quealy, 2006). At the heart of this debate is the complexity of the learning process and the number and interrelationships of the variables that impact learning. This is compounded by the difficulty in determining which measures should or could be used to determine the success of learning (Spurlin, 2006).

**Perceptions and Learning**

There is a significant body of research that illustrates that the way the learning environment is perceived by students, rather than even the quality of the content, has a profound impact on how the students cope with their learning environment, and therefore, their learning results (Daley, Warkins, Williams, Courtenay, Davis, & Dymock, 2001; Gijbels et al., 2006;
Entwistle & Tait, 1995; Segers & Dochy, 2001). Shuell & Farber (2001) studied the ways in which students’ perceptions of technology implementation affect learning and found that students view technology as having many benefits in facilitating learning and increasing motivation to learn. The students are very positive about the use of technology when they perceive that it improves their learning (Lowerison et al., 2006; Trigwell & Prosser, 1991).

Segers and Dolchy (2001) propose that perceptions are not only based on the conditions of the actual learning environment, but are also rooted in former and recent learning experiences. There is often a mismatch between the learning environment as planned by teachers and the way the learning environment is perceived by students (Iredale, 2006). Trigwell and Prosser (1991) propose that the effectiveness of a learning environment depends on the way it is perceived by the students (which may differ from the reality, or from the intent of the teaching strategy) and this has a profound influence on the quality of learning outcomes. Perceptions provide a valid input for measuring characteristics of learning (Entwistle & Tait, 1995; Daley et al., 2001; Segers & Dolchy, 2001). It is the learners’ perceptions of the online learning environment that determines whether or not they will be successful (Dringus, 2000).

**Variables Affecting Learning**

Learning styles, teaching styles (constructivist, behaviourist, instructivist methods), multiple intelligences, socio-economic factors, student preferences, active learning techniques, air temperature, time of the day and caloric intake have all been identified as variables that have been shown to have some impact on learning (Cross, 1999; Ramage, 2002). Students’ motivation, peer influence and study strategy have also been shown to be important to the learning process (Concannon & Campbell, 2005), as are access to technology and computer skills
The social and human variables affecting learning in a web based environment are not well understood (Oh, 2003).

**Theoretical Framework for Studying the Efficacy of CMSs to Impact Learning**

Over a decade ago Kozma (1994) cautioned that it cannot be assumed that because computers are being used that they are being used effectively. Technology used must be aligned with the learning goals and expected outcomes (Laurillard, 2002; Roblyer, 2003). Merely adding a CMS to a learning experience does not make it a better learning environment. It should only be introduced into the learning process if it enhances those characteristics that are known to be effective (Lightfoot, 2005; Smith & Potocznaik, 2005; Wise & Quealy, 2006). As educational technology is integrated into practices of higher education, the traditional context of learning is experiencing a radical change (Coates, 2006; Daley et al., 2001; Moore, 2005). Even though there is no doubt about the contributions that technology can make to learning centered education, much of the literature discusses the extraordinary potential of educational technology and there are not many references to exactly what can be achieved by using it (Coates et al., 2005; West et al., 2006, 2007; Wise & Quealy, 2006).

**Assessment of Technology as it Impacts Learners and Learning**

Much of what is written about CMSs is descriptive. A good example of this is the book *Course Management Systems for Learning Beyond Accidental Pedagogy* (McGee et al., 2005). The book, is not as the title suggests about “learning”. It is a overview of standards, practices and possibilities of course management systems in higher education. The focus of the book is on conceptualizing how the functions available through the CMS could work to support certain principles of teaching and learning. As noted in the forward: “This book provides a vision of the
next generation CMS through the voices of international experts, designers, instructors, and visionary thinkers” (McGee et al., 2005; p. x).

Research on CMSs and their efficacy to impact learning has to be grounded in solid principles, theories and frameworks of learning (Lightfoot, 2005; Coates, 2006; Wise & Quealy, 2006). A web enhanced face to face learning environment has the potential for being better than either a fully face to face course or a fully online course as the best of both worlds can be blended into the experience (Albright, 1999; Bates & Poole, 2003; Ehrmann, 1995). There is a tremendous amount of work involved in developing and designing quality learning experiences which incorporate the use of any technology (Al-Bataineh et al., 2005; Smith & Potoczniak, 2005). To realize the potential of CMSs and move towards the new visions of learning require new conceptions of learning (Carmean & Haefner, 2002; McCombs, 2000; Wise & Quealy, 2006). The kind of work that students do using a CMS is necessarily different from what they do via other methods of learning. The key to evaluating any technology is not its use as a tool, but its effective use to enhance learning, and this can only be understood in the context in which the learning is taking place (Bransford et al., 2000; Lauillard, 2002). The focus of research should be on exploring how to realize the promises of technology by matching its use to how learning best occurs (McCombs, 2000). Merely adding any technology to a classroom does not enhance the learning environment (Mishra & Koehler, 2006). CMSs depend for their success on being effectively integrated into the learning context (Laurillard, 2002; Wise & Quealy, 2006).

Smith and Potocznaik (2005) propose that there are five components that are necessary for successfully integrating any technology in a classroom to promote a stimulating learning environment. They refer to these as five points of connectivity and they include communication, collaboration, motivation, integration and creativity. The technology should facilitate
communication between students and their instructors and among the students as learning is most productive when there is dialogue and all the classroom participants are involved. Technology should facilitate not only discussion and feedback but also collaboration, working together, to add greater meaning to the subject area under study. Integration of a technology is a gradual process of determining which technology is best for students in a particular learning environment, as technology for technology sake does nothing to enhance learning and may in fact impede it. Motivation to use the technology is essential if it is to have any impact on learning. Creativity is the point of connectivity that ties together the four previous points, as it can help engage students in the course material and enhance the overall learning experience.

"Placing learning and the learner first" (O'Banion, 1997, p. 19), the key concept of the Learning College, should also be the driving force behind the use of CMSs in the campus based educational experience. The latest research on learning affirms that learning is not a passive process where knowledge is merely transferred or distributed to students, but it must be seen as a transformational process whereby students acquire facts, principles and theories as conceptual tools for reasoning and problem solving in meaningful contexts (Angelo, 1999; Barr & Tagg, 1995; Cross, 1999; Chee, 2002; McCombs, 2000; Tinto, 2002). O'Banion (1997) defined six key principles of a learning-centered institution: Learning Colleges:

- create substantive change in individual learners;
- engage learners as full partners in the learning process, with learners assuming the primary responsibility for their own choices;
- create and offer as many options for learning as possible;
- assist learners to form and participate in collaborative learning activities;
• define the roles of learning facilitators by the needs of the learners;

• succeed only when its learning facilitators improve and expand learning and this can be documented for its learners (p. 47).

The Seven Principles For Good Practice in Undergraduate Education (Chickering & Gamson, 1987) provide a framework, for not only the campus based, but also online learning experiences. They include encouraging student faculty contact, co-operation among students and active learning experiences, giving prompt feedback, emphasising time on task, respecting diverse talents and communicating high expectations. They are intended as guidelines for educators and students to improve teaching and learning and include many of the same concepts that O'Banion outlined. In the early nineties the American Psychological Education (APA) issued a report that identified twelve learner-centered principles and this report was revised in 1997 to identify fourteen learner-centered principles. These principles were developed by incorporating the work of almost a century of research. They focus on the context, nature and the goals of the learning process, the construction of knowledge, the development of thinking skills, motivational and emotional influences on learning, learning and diversity, standards and assessment (APA, 1997). These tenets of the learning college movement, the research validated learner centered principles and principles of good practice of undergraduate education, provide a framework for investigating the efficacy of educational technology to impact learning (Ehrmann, 1995; McCombs, 2000; Coates, 2006). At the same time it must be cautioned that “in a complex, multifaceted, and ill-structured domain such as integration of technology into education, no single framework tells the “complete story”; no single framework can provide all the answers” (Cross, 1999; Mishra & Koehler, 2006).
Theories of Learning

Generally there are three major learning theories. Behaviourism focuses on the learning which is the result of a change in behaviour. Cognitive theory looks at the changes in understanding that result from learning, and constructivist theory states that there must be active participation and reflection by learners (Ertmer & Newby, 1993; Bates & Poole, 2003). The principles of learning advocate that the goal of teaching is to produce student learning and not to instruct students (Barr & Tagg, 1995). Cognitive and constructivist theories suggest that meaningful learning environments facilitate the construction and discovery of knowledge (Brooks & Brooks, 1999; Ertmer & Newby, 1993; Gijbels et al., 2006). The challenge is to use the new educational technology tools to provide opportunities for deep experiential learning. In order to do this a clearer understanding of the efficacy of these technologies to impact learning is essential. As Lightfoot (2005) astutely observes, students have been taught in a traditional classroom setting for so long that they may not know how to make effective use of the online aspects of a course.

As Laurillard (2002) points out, “the character of student learning is elusive” (p. 62) and dependant on a number of variables including previous experiences of the world and of education and on the nature of the teaching situation. Different approaches to learning reflect contradictory views, and therefore measures of learning are controversial (Bates & Poole, 2003; Coates, 2006; Lauillard, 2002). Although we cannot truly measure learning, there are several commonly used methods that can be used to assess the impact of CMSs on learning. Caruso (2006) asserts that the relationship of CMS use and grade performance and indicators of student engagement provide credible proxies for actual learning.
Student Engagement as a Measure of Learning

There is an extensive body of over thirty years of research into student learning and the role of engagement in the learning process (Pascarella & Terenzini, 1999) which clearly illustrates the impact of engagement on learning outcomes. This indicates that an understanding of the ways in which students engage with CMSs is imperative to understanding the efficacy of these systems to enhance learning (COU, 2006; Wise & Quealy, 2006). Assessing student engagement is seen as a key initiative in facilitating quality improvements in education (COU, 2006). Student engagement studies focus on understanding how students become engaged in and participate actively in learning in learning, they do not evaluate learning outcomes, but the link between the process of learning and the outcome is increasingly well established in the literature (Coates, 2006).

Coates (2006) analysed the nature and implications of student engagement and examined how CMSs may influence student engagement. He contends that it is valuable for research to explore the new patterns and processes of engagement of campus based students who are users of CMSs. Educators need to think about how CMSs can help students to actively engage the objectives of the course (Smith & Potocznai, 2005). It is suggested in some studies that perhaps the best test of effectiveness of the online environment is the level of engagement of the student in the online learning task (Daley et al., 2001; Al-Bataineh et al., 2005). If students perceive that the environment helps them to learn, they are more likely to be engaged in learning (Bryson & Hand, 2007; Tinto, 1993).

In the book Student Engagement in Campus-based and Online Education, Coates (2006) presents a comprehensive analysis of the student experience and maps out an approach for understanding and measuring online and general forms of learning for campus-based students.
Coates has designed, tested and validated a Student Engagement Questionnaire (SEQ) to measure key aspects of the online and general forms of student engagement with their campus-based university study. The SEQ provides a research driven approach for accessing the quality of campus-based online education by directly measuring the extent to which students are engaging with activities and situations that are likely to promote learning. Bryson and Hand (2007) propose that the way students engage with their education is dynamically related to their perceptions and experiences as a student. A great deal remains unknown about the ways in which campus based students perceive and are engaged with the online learning experiences afforded by the use of CMSs.

Analysis of Recent Studies

The research on the effectiveness of education technology is still in the developmental stage and much of it is limited in quality. Coates (2006), claims that many of the recent studies lack "theoretical contextualisation and empirical validation" (p. 6). However there have been a series of correlation studies that show a positive relationship between student achievement and engagement and the use of technology. There is now a need for rigorous empirical research to provide a basis for evidence based best practices (Coates, 2006; Lightfoot, 2005; Ungerleider & Burns, 2004). Without this research we cannot be certain that our practices are focused on learning (Kirkwood & Price, 2006).

Coates (2006), West et al. (2006), and Wise and Quealy (2006), conducted extensive reviews of the literature on CMSs and found that most of the studies were descriptive reports or quick evaluations about individual projects or how a CMS impacted a particular course. They surmised that even though some research projects claimed to be grounded in a theoretical
framework or pedagogic approach there was nothing compelling in the literature that
demonstrated enriched student learning attributed specifically to a CMS or CMS-based
resources. Danaher et al. (2005) noted that much study on CMSs is directed at technical and
managerial issues related to the use of the online technology tools, and has focused on the
evaluation of the technology and not on learning. The majority of studies about the use of
technology compare distance with the face to face environment (Russell, 1997; Ramage, 2002).
The faculty perspective of online learning has also been widely studied (Morgan, 2003; D'Silva
& Reeder, 2005). Even though this information is vital to understanding the ways in which
technology impacts learning, the importance of placing students at the centre of conversations of
learning cannot be overemphasized, yet, there is a paucity of research in this area (Cross, 1999;
Daley et al., 2005; Coates, 2004, 2006). The current research has also been criticized because it
has not been grounded in theoretical models that could provide concrete insights into the data
collected from the research (Bates & Khasawneh, 2004; Coates et al., 2005; Coates, 2006; Wise
& Quealey, 2006).

A CMS has been implemented at almost every institution of higher education in the
United States, but its impact on teaching and learning has not been widely assessed (Caruso,
2006). A longitudinal study regarding the use of CMSs by higher education institutions in the
United Kingdom between 2001 and 2005 shows clear evidence of increasing use of CMSs,
especially Blackboard and WebCT, but not much change in the ways the systems are being used
by faculty (Browne et al., 2006). This study found that 95% of all institutions of Higher
Education in the United Kingdom are using a CMS in the delivery of their campus based
courses. Uses of the CMS by both faculty and students also continue to grow significantly. The
study emphasizes that even thought there is significant progress of the diffusion of these systems
on campuses, there has been no significant transformative impact on instructional practices. The study concludes that the true value of CMSs will only be realized when changes are evident in the way courses are delivered and there is active student participation across campuses of higher education.

Cross (1999) suggests that students and their learning should become the focus of everything faculty do. She questions the "over dependence on correlation and experimental research and states that a deeper level of understanding should be the focus of research on learning. Chee (2002) proposes that studies should focus on the educational practices that the technologies serve and not on the use of the technology. Kirkwood and Price (2006) ponder why this often repeated message has failed to have a significant impact on policies and practices. Kirkwood and Price's article provides an interesting discussion on the relationship between information and communication technologies and the teaching and learning, particularly in the context of distance education. They point out that the adaptation necessary to realize the potential of technology to enhance learning environments involves "a range of factors that is broader and more far reaching than simply developments in technologies for teaching and learning" (p. 2). They suggest that it is very important for institutions to reflect on their education models and determine which of the underlying assumptions about learning are still applicable and which need to be adapted in relation to the use of technology, especially as it supports conceptions of learning.

The value of CMSs as perceived by students is reflected in the large scale 2005 Educause Centre for Applied Research (ECAR) study of students and information technology (Caruso & Kvavik, 2005). The convenience, control, connection and learning that it facilitates enhances their campus based learning experience. Salaway et al. (2006) concluded from the 2006 ECAR
study that students who have experienced the use of the CMS are extremely positive about them and value the asynchronous aspects more positively than the synchronous features.

Caruso’s (2006) research bulletin *Measuring Student Experiences with Course Management Systems* reports on the review of several research studies that focused on the student experiences with CMSs. She concludes that students value CMSs for the convenience they provide. They want the CMS to be reliable and available at all times. The ability to keep track of grades and tests and access to exams and quizzes is seen to be very valuable, while online discussions is valued the least of the tools available with the CMS. Many of the studies referenced in this review are not grounded in a theoretical framework and have not been published in academic journals. For the most part they are based on surveys and the analysis of system logs to track student usage of different features within the CMS. Student use of the system was seen as the “most fundamental measure of the student experience with [CMSs]” (p. 3). Coates et al. (2005) and Coates, 2005 and 2006 criticize this approach to evaluating the student experience with CMSs. They argue that research that is based on treating students as technology users rather than as “learners engaged in constructing knowledge” (Coates, 2005, p. 66) does not contribute to the understanding of the characteristics of CMSs that affect learning outcomes (Coates, 2004, 2005, 2006; Coates et al., 2005).

Papastergiou (2006), investigated the recent research on the applications of a CMS in academic institutions, and evaluated the research directions and findings from a social constructivist perspective. The abstract of her study noted that “It was found that CMSs are currently used in a variety of disciplines for oncampus, mixed mode, and completely online courses, yielding positive student attitudes and enabling faculty to create online learning environments of social constructivist inspiration” (p. 593). However in the conclusion of the
article it was noted that “this investigation showed that the collaborative facilities of current CMSs are still lacking as regards easy and straightforward support of collaboration and interaction among course participants” (p. 610). Papastergiou goes on to note that “they fail to entirely support subjects that involve hands-on tasks and intensive, structured instructor – student and peer interactions on the basis of these tasks” and “they cannot entirely support alternative forms of assessment compatible with social constructivist approaches to learning” (p. 610). This mixed message was a very frustrating aspect of much of the literature.

A few small scale studies have investigated the use of a CMS in campus based classes. Dearnley et al. (2006) investigated the effects of the use of Blackboard in the School of Health Science, and identified the extent to which “non traditional”, campus based students access the online learning facilities and the factors that enhance or form barriers to access. More than 65% of the students accessed Blackboard but only 14% of the students actually used the resources and found them useful. Access to hardware and software was only a minor problem for the mature students who participated in this study. The primary barrier to students’ access to online learning tools was skill deficit and the inability for appropriate self assessment of learning needs. It was determined that if students do not have the skills needed to make use of the learning activities facilitated by CMSs, then they are disadvantaged. This finding was also reported by Masiello et al. (2004) while investigating the use of a CMS to support a microbiology course offered to medical students. The students in Masiello et al.’s study found the web based resources were a good complement to the traditional lectures but they were unaware of what was required of them in the online environment in terms of participation and learning activities. Kibble, Kingsbury, Ramirez, Schlegel, and Sokolove (2007) also report that the use of CMSs can enhance student
learning, but note that this modality of instruction has not been seamlessly introduced into the curriculum.

Ocker and Yaverbaum (2001) studied the way students who were participating in campus based courses perceived the use of asynchronous conferencing technology tools available through a CMS in completing collaborative team work assignments. Each of the students in the study completed two assignments, one only using face to face communication and the other using asynchronous computer conferencing technology for collaboration. An interesting finding of this study was that neither the level of computer literacy, the level of the student (graduate or undergraduate), or, the type of course had any relationship with the satisfaction variables in the face to face or asynchronous environment. The data from this study indicated that students prefer to collaborate in the traditional face to face mode as compared to the asynchronous. They reported that the face to face discussions were of higher quality than the asynchronous discussions and concluded that there is a need for more research that seeks to better understand the technology related delivery of education.

Concannon and Campbell (2005) looked at students' perceptions of the quality and benefits of online learning in a large campus based accounting class. The study described the ways in which the CMS is used in the class and the factors that influence its use. The study found that students approached the study process in much the same way as they probably would have prior to the introduction of technology to support and enhance the learning process. The Internet based learning resources were used as secondary resource. Ease of access to resources and a centralized area for the location of information or resources pertaining to each module was seen as a major benefit to the use of the CMS. The students saw online learning activities as an integral and expected part of the learning process. Negative experiences were mostly as a result
of technical problems or of poor design of the Internet learning tasks. This supports the finding of Oh’s (2003) study of aspects of elearning that are perceived as helping foster successful learning.

Coates (2006) study on student engagement and the CMS concluded that “despite much theorizing and considerable injection of resources…..students do not yet see themselves as engaging in technologically distributed campus-based learning” (p. 184). His research focused on examining how students integrate online learning management systems into their campus based study revealed that students see their learning unfolding in two possible or parallel worlds, one virtual and the other real. In contrast to the widespread assumptions about the ubiquitous use of technology by students, Coates’ study exposed variation, based on their styles of engagement, in how students integrate CMSs into their campus based study. The use of the CMS, while not as important as in-person experiences augments the learning experience, and the students see online systems as a means of becoming more involved in their university education.

Lightfoot (2005) investigated the effect of the addition of technology components in an actual classroom setting. The technology components included many of the tools that are accessed through a course management system such as access to email, web based course content and discussion boards. He concluded that the students found the web based aspects of the course to be very useful. They appreciate having assignments, slides handouts and lecture notes on line and they find electronic methods of communication to be very advantageous.

Nobel’s (2002) often quoted study reported that students at the University of British Columbia voted four to one in a referendum against an initiative for lecturers to use online resources in their campus based courses. He argues that there is no evidence of the pedagogical
usefulness of online instruction and it in fact reduces performance. He also claims that students neither demand or support online initiatives. Nobel raises many important issues regarding the social concerns about the value of the use of Internet based technologies for learning and instruction, but the recent research disputes his claims of its contribution to the demise of higher education.

A review of the content of three predecessor journals to the Learning Media and Technology Journal, the NECCTA Bulletin (1968-1975), the Journal of Educational Technology (1975-1995) and the Journal of Educational Media (1996-2004), provides a good overview of the past successes of using television to improve education and a review of the shifts in educational policy over the past 4 decades (Moss, 2006). The review points out the similarities in the way in which 40 years ago television emerged as the weapon that would transform education just as Internet based technologies were touted as the panacea for all of educational ails during the 1990’s. It illustrates that one clear lesson from the past 40 years, is that “political rhetoric and strident promotion of the power of technology tends to hinder rather than help educational advances” (p. 78).

As many institutions continue to make substantial investments in technology, it becomes increasingly important to be able to discern the impact of technology on the educational effectiveness of colleges and universities. The literature reviewed including the descriptive and opinion essays, policy papers, evaluations, how to articles and a significant body of “limited” research indicate that the higher education community still has a great deal to learn about the characteristics of technology, and in particular course management systems that enhance learning and those that create a barrier to learning. This view is supported by Phipps and Merositis (1999).
who state that despite the large volume of written material and the intense focus on this topic, the overall quality of the original research is questionable and many of the findings are inconclusive.

Research which focuses on determining what constitutes the effective use of technology for learning should not only focus on the positive and negative factors of technology, but should also examine the wider factors that impinge on its use by students (Chee, 2002; Song et al., 2004; Kirkwood & Price, 2005; Lightfoot, 2005). These factors include attitudes to computers, study patterns, peer encouragement, support of the resources by the lecturer/tutor, instructional design of the content and technical support (Concannon & Cameron, 2005; Song et al., 2004). Bates and Khasawneh (2004) stress the importance of examining the online learning self efficacy of students and its role in the way that the students perceive their learning experiences with these technologies.

In order for CMSs to enhance the campus based experience of students, the efficacy of these systems to impact learning should be determined by well designed research that is solidly grounded in educational theories and established frameworks of learning (Masiello et al., 2004; Oh, 2004; Mishra & Koehler, 2006). In addition to large scale quantitative research studies, qualitative case study reports could provide some much needed evidence based information about the efficacy of education technology to enhance learning (Ehrmann, 1995; Cross, 1999; Twigg, 2001; Lauillard, 2002; Coates, 2006). Kirkwood and Price (2006) caution that educators have deep rooted beliefs and conceptions of the educational environment, and if there is no evidence to indicate that those assumptions should change, then this can create a barrier to move forward with new ideas. This is particularly true about the use of technology, and it is therefore crucial for research to provide evidence as to its effectiveness which will allows educators to actively challenge and change long held assumptions (Ertemer, 1999; Rogers, 2003).
An important point emphasized from the research studies is that the use of any technology tool such as a CMS, is not the most important factor in any educational program. How it is utilized and constructively aligned, and the benefits that students perceive as enhancing or impeding learning, are more significant than the inherent characteristics of the technology. Education technology's greatest influence may be the way that it has caused the higher education academy to think about teaching and learning (Bates & Poole, 2004; Concannon & Campbell, 2005).

The primary focus for the use of a CMS remains unclear. There is no consensus of thought or methodology between the use of CMSs and expected learning outcomes (Malikowski et al., 2007). The approach to the use of these systems among courses at an institution and between institutions varies widely (Al-Bataineh et al., 2005; Kopyc, 2006). Is it the pedagogical value it adds; the control, speed and immediacy it affords; or is it the economies of scale and widening participation? Academics across the world have yet to agree on the characteristics of CMSs that impact learning. In order for CMSs to effectively enhance learning they will have to be supported by theories of learning, and well designed processes based on research (Masiello et al., 2004; Kopyc, 2006).

The institutions that develop rich conceptions of teaching, learning, content, and context will unleash the potential of educational technologies to transform scholarship (Chee, 2002; Laurillard, 2002; Al-Bataineh et al., 2005; COU, 2006; Kirup & Kirkwood, 2005; Kirkwood & Price, 2006). Education technology provides us with access to a breadth of intellectual and cultural resources far greater than ever before; new, sophisticated and customizable tools for inquiry and investigation; and modes of interaction communication, and collaboration not formerly possible. The use of technology over the past decade has, for the most part, not been
based on an understanding of its effectiveness, instead, the emphasis has been on deployment and adoption. In order to adapt to the new learning environments that technology affords, educators must engage in conversations about all activities essential to learning, focusing on the perspective of the students, while concentrating on the full context of the teaching learning process. The links between CMSs and learning will not be elucidated without research grounded in a theoretical framework for learning and empirically validated measures (McCombs, 2000; Lauillard, 2002; Coates, 2006; Wise & Quealy, 2006).

**Scope and Limitations of Literature Reviewed**

An extensive search of the literature using the keywords “faculty or teacher or professor* or student*) and (online or "cms" or "lms" or "course management system*" or "learning management system*" or "virtual learning environment" or courseware did not reveal any published reports of research that explored the perceptions of students and faculty in the same study, about the effect of the use of a CMS specifically on learning. Most of the research about the use of technology in education is aimed at “demonstrating” and “testing” whether or not technology integration into teaching and learning “adds value”, and if so what that is. This approach is based on a different conceptual framework; the key question being: “Under what circumstances does the use of the CMS affect the learning experience?”

**Summary**

The recent literature suggests that students expect that a CMS will be used as an adjunct to the classroom based experience and they perceive that the use of a CMS has a positive impact on learning. There is evidence that when a CMS is used in the delivery of campus based courses the students value it for the convenience, control, communication and management of course
activities that it allows. There are a number of claims that CMSs can support new structures and models of learning, but these models are not clearly articulated. The literature discussing the connections between the use of educational technology in general, and CMSs in particular, and student engagement, student success and its impact on the learning experience is largely inconclusive.

Coates et al., (2005) stress that the future position of the CMS in education needs to be the subject of educationally-focused, public discussion and debate. A frustrating aspect of the literature on educational technology is that there is no clear connection between theory and practice, in the dominant applied action research framework model, which seems to fit most of the research studies described in the literature. Most of the research is not grounded in a credible model of learning or of teaching and there is no clear articulation of the desired outcomes of the use of CMSs. The studies on the effect of CMS on learning have focused mostly on its use in fully online courses. Only a few recent small scale studies have investigated the impact of its use in campus based courses. In the quest to use these systems the focus has been on implementation and adoption and not on establishing a theoretically grounded framework for its use. As Wise and Quealy (2006) point out there is no clarity of purpose regarding the role of the CMS in the teaching and learning framework of the university or college.

The literature review revealed a significant amount of information about individual projects and case studies about the use of educational technology but much of what is written is descriptive. There are many articles that focus on enthusiastic descriptions of possible uses of technology and a number of futuristic predictions of the potential benefits of its use are discussed. Some of the research claims to evaluate the use of CMSs but the research is not grounded in a theoretical framework and is not based on any particular pedagogic approach.
There is no compelling evidence to demonstrate enriched student learning which can be attributed specifically to a CMS or CMS based tools. The student and the faculty experiences with CMSs are studied separately yet teaching and learning are essential to each other. The purpose of teaching is for learning to occur and learning can be viewed as a product of teaching.

There is also a great deal of speculation about student expectations with respect to technology enhanced learning environments but no discussion of how realistic and relevant those expectations are. There is now a need to investigate how the students' expectations for technology in their courses match their capacity for learning within the higher education context. The 2006 study of Undergraduate Students and Information Technology indicates that even though most of the students surveyed are enthusiastic users of IT they prefer only a "moderate" amount of IT in their courses. This is in contrast to much of what is written about the expectations for the use of technology in the academic experience of the net generation of students on campuses today.

The effective use of CMSs to enhance learning requires an understanding of teaching conceptions and practices as well as the factors in the learning context that affect the way that students learn. Case study research grounded in research validated learner centered principles and practices of undergraduate education, which explores the expectations of the students and investigates the perceptions of both the faculty and the students is critical to understanding the impact of CMSs on the student experience. Developing a synergy between traditional teaching and learning practices and those enabled by technology will ensure that colleges and universities remain true centres of learning.
Chapter Three: Methodology and Research Design

Purpose of the Study

The purpose of this study was to explore the efficacy of a course management system in learning. The intent of the study was to examine how, when, why and under what conditions the use of a Course Management System (CMS) affects learning as perceived by students and faculty at one large, urban, multiculturally diverse, college in Ontario, which has a history of CMS use. In the quest of institutions of higher education to use these systems the focus has been on implementation and adoption, and not on establishing a theoretically grounded framework for its use. As Wise and Quealy (2006) point out, there is no clarity of purpose regarding the role of the CMS in the teaching and learning framework of the university or college.

The 2007 study of Undergraduate Students and Information Technology (IT) (Salaway et al., 2007) indicates that even though most of the students surveyed are enthusiastic users of IT they prefer only a “moderate” amount of IT in their courses. This is in contrast to much of what is written about the expectations for the use of technology in the academic experience of the net generation of students on campuses today. The effective use of CMSs to enhance learning requires an understanding of teaching conceptions and practices as well as the factors in the learning context that affect the way that students learn. Case study research grounded in research validated learner centered principles and practices of undergraduate education, which explores the expectations of the students and investigates the perceptions of both the faculty and the students, is critical to understanding the impact of CMSs on the student experience.
This chapter discusses the methodology used in the study, including the research design, the population and sample size, data collection and data analysis. The pilot study, ethics review, methodological assumptions and limitations of the study are also described.

Research Design

Utilizing a mixed methods case study approach, this research explored the characteristics of the use of a CMS that are perceived to enhance learning and those that are perceived to create a barrier to learning. A key feature of mixed methods research is methodological pluralism: qualitative and quantitative research techniques, methods, approaches, concepts and language are combined into a single study (Johnson & Onwuegbuzie, 2004). The unique strength of this approach is the ability to combine a variety of information sources including documentation, interviews, and survey questionnaires (Yin, 2003). The data from one source are used to enhance and elaborate the data from the other sources. The qualitative measures are used to obtain detailed specific information about the quantitative measures (Creswell, 2005).

Case study research is particularly effective in situations where it is difficult to control events, and there is a high degree of complexity; such as is the case with learning. Yin (2003) advocates that it is particularly effective when a “how” or “why” question is being asked about a contemporary set of events over which the investigator has little or no control. This description clearly fits this study where the aim was to develop an in-depth understanding of the efficacy of a CMS in learning; “how” and “why” the use of a CMS affects learning as perceived by students and faculty. Yin (2003) goes on to note that the case study design is suited to situations in which it is impossible to separate the phenomenon’s variables from their context, such as is the nature of learning.
This study focused on understanding the perceptions of students and faculty about the characteristics of the use of a CMS that influence learning. Results of tests, essays and assignments are traditional ways to measure the abstract conceptual variable “student learning” (Gray & Guppy, 2003), however the intent of this study was not to measure learning; it was to gain an understanding of the efficacy of a CMS in learning as perceived by faculty and students. Learning is a broad concept and no single indicator could possibly measure or reflect “learning”. There is a significant body of research that illustrates that the way the learning environment is perceived by students, has a profound impact on how the students cope with their learning environment, and therefore, their learning results. Examining perceptions provide a valid input for measuring characteristics of learning (Daley et al., 2001; Entwistle & Tait, 1995; Segers & Dochy, 2001; Gijbels et al., 2006).

A combination of the research steps as described by Merriam (1998) and Johnson and Onwuegbuzie (2004) were followed during this study. These included:

1. Reviewing the literature
2. Shaping the theoretical framework and research problem
3. Defining the research questions
4. Selecting the case and the sample populations within the case
5. Determining the qualitative and quantitative methods of data collection methods and the research instruments
6. Carrying out the field work which included overlapping data collection
7. Analysing the data using the constant comparative method of data analysis
Research Questions

A case study approach begins with an early identification of the research questions which are then used to guide the inquiry and selection of the case (Merriam, 1998). The research questions concerned the effect on learning, as perceived by students and faculty at one Ontario College, of the use of a CMS. The goal of the study was to identify the most effective ways to integrate a CMS into the campus based learning experience, so that it is perceived by students to help them learn. With the aim of determining the efficacy of a CMS in learning, using an exploratory, descriptive, research design, the following research questions were addressed:

1. What do students and faculty identify as the purpose of using a CMS within a college, business, program?

2. What characteristics of a CMS enhance learning as perceived by students and faculty?

3. What characteristics of a CMS impede or provide a barrier to learning as perceived by students and faculty?

4. What are the perceptions of students and faculty about the appropriate use of a CMS?

Ethical Review

As required by the Ontario Institute for Studies in Education of the University of Toronto, an expedited, ethical review protocol was completed and approved by the Educational
Research Ethics Board (Protocol Reference #20595). A separate expedited ethical review protocol was completed and submitted to Seneca College and was approved by the Seneca Ethics Review committee. The ethical review protocols specified how the surveys and interviews and document analysis would be conducted and detailed how voluntary participation and non-identifiably of the participants were to be ensured.

**Site and Participant Selection**

Purposeful, convenience, sampling was used to select the case that was used in this study. Merriam (1998) states that purposeful sampling is essential when the purpose of the research is to “discover, understand and gain insight” (p. 61), therefore a sample from which the most can be learned must be selected. A purposeful sample allows for the selection of an information rich case for in depth study from which substantial and relevant data can be gathered (Creswell, 2005). The case used in this study allowed me to delve deeply into and to examine and understand the intangible aspects of the efficacy of a CMS to impact learning. Merriam (1998) states, “the specificity of design of a particularistic case study which focuses on a particular situation, event, program or phenomenon makes it an especially good design for practical problems – for questions, situations or puzzling occurrences arising from everyday practice” (p. 29).

This research was carried out at a large, urban and multiculturally diverse college in southern Ontario. In addition, this college was selected because it has been using some form of a CMS since 1997 and the current CMS has been implemented at the college since 2000. This means that at least two cohorts and as many as four student cohorts have passed through the college’s CMS. There is evidence in the literature that there are many variables that influence perceptions of any type of educational technology and from a user perspective the biggest of
these is the stability and robustness of the technology infrastructure (Butler & Sellbom, 2002). This college has a very stable and robust infrastructure and a widely established technical support mechanism for students and faculty using the CMS. In the fall of 2007, almost 75% of the professors teaching in the full time programs at the college were using the course sites. Facilitating the use of the CMS is entrenched in the Strategic eLearning Plan of the college. The efficacy of the CMS can therefore be studied without the confounding effects of an unstable technology infrastructure. In case study research it is of utmost importance to choose a case from which the most can be learned (Merriam, 1998), that may mean choosing the case that is the most accessible or the one with which the most time can be spent (Stake, 2005, p. 451).

**Description of Sample Population**

There were a number of other major research studies being carried out at the college at the same time as this study. The recent increased focus on research in the Ontario college system has resulted in both students and faculty at colleges being invited to participate in many different research studies. Therefore in an effort to reduce the effects of survey and interview fatigue, purposeful sampling was used to select the population of students and faculty who would be invited to participate in the study. After consultation with the person responsible for academic institutional research the first semester students in the three year business diploma students were selected to participate in the study. These students were chosen because the students in the two year certificate programs at the college were the focus of another major study, being carried out at the same time as this one.

The business programs were selected as the target population for this study for a number of reasons including the size and nature of the programs and the adoption of the CMS by faculty
teaching in those programs. The school of business is the school with the largest number of
students enrolled at the college and the subject matter of the courses offered to the students is a
constant. The large number of enrollments in the three year business programs increased the
chances of a greater number of students agreeing to participate than was likely in other, smaller
programs. The types of courses offered reduced the possibility of a varied curriculum affecting
the perception of learning. Even though there will be no attempt to generalize the findings of the
study, in an attempt to also exclude the variable of academic preparation, as a variable affecting
learning, it was important to the dissemination of the findings, for the students participating in
the study to be typical college students. The academic data of the students who were offered
admission to the various programs, which are collected by the college for demographic purposes,
were reviewed and discussed with one of the academic administrators, and compared with data
from previous years. From these discussions and this analysis it was determined that academic
preparation was not a variable, as these students were typical entrants at this college.

The faculty who were teaching the students enrolled in the three year business programs
were invited to participate in the study because teaching and learning are inextricably linked. The
literature review revealed that the student and faculty experience with the CMS have been
studied separately, yet teaching and learning are essential to each other. It was therefore vital to
examine the perceptions of both students and faculty. Each course, offered at the college,
automatically has a course site created on the CMS, but it is the choice of the professor to make
that course site available to the students or not. Based on my experience as academic liaison for
the CMS at the college, and the CMS usage statistics, I was aware that about 75% of the faculty,
teaching in the business programs used the CMS, at a wide range of levels. This increased the
possibility that the students in these programs would be exposed to the use of the CMS in the courses that they were enrolled in during their first and second semesters at the college.

One of the distinguishing features of case study research is completeness. In this case this meant describing the history of the implementation of the CMS at the college, how the decision was made to implement the CMS and the expectations of those who made the decisions. As part of this descriptive background analysis members the CMS working group which had been formed to advise on the adoption and implementation of the CMS at the college, were invited to volunteer to be interviewed.

While the study was being planned, letters were sent to the two deans of the school of business explaining the study in detail and requesting their support of the research. The deans distributed a description of the proposed research to all of the academic chairs in the school of business inviting their feedback. The study received support from all of the chairs and the deans in the school of business. A letter was also sent to the president of the college requesting permission to identify the college in the questions on the surveys and permission was granted to do so. After the research was completed and the data were being analysed, a request was sent to the president for permission to identify the college in the report of the research findings, and he again granted permission.

**Research Procedures**

The research procedures included a pilot study, and then the main study. There were four components in the main study: two surveys of the students, one at beginning at the first semester and another at the beginning of the second semester of their programs of study; interviews with the students during the second semester; interviews with faculty who used the CMS in those
courses and those who did not use it; interviews with CMS advisers and a review and analysis of college documents. Triangulation, as will be discussed later in this chapter, was achieved by collecting data from surveys, interviews and pertinent college documents and by exploring the perceptions of students, faculty and CMS advisers.

In the rest of this chapter, the instruments used during the study will be described, followed by a description of the pilot study. The fieldwork for the main study: the data collection, including the participant selection and sample size and review of college documents, follows the description of the pilot study. In the final section of the chapter the data analysis, reliability and validity measures, methodological assumptions, limitations and ethical issues and considerations will be discussed.

**Instruments Used in the Study**

The qualitative methods (interviews and document analysis) were used to explore and gain an in-depth knowledge about the context of the use of the CMS and to gain insight into the purposes of its use as well as the characteristics of its use that facilitate and/or create a barrier to learning. The quantitative method (survey questionnaires) was used to gather demographic information about the students and to identify the features of the CMS that were used and the students’ perceptions of their impact on learning. The instruments used in this study included:

1. Survey One questionnaire (Appendix A)
2. Survey Two questionnaire (Appendix B)
3. Interview Guide - Students (Appendix C)
4. Interview Guide - Faculty using the CMS (Appendix D)
5. Interview Guide - Faculty not using the CMS (Appendix E)
6. Interview Guide - CMS Advisers (Appendix F)

**Interviews**

Yin (2003) notes that while case study research should employ multiple sources of data, one of the most important sources of case study information is the interview. Interviews can produce in-depth data difficult to elicit with a questionnaire. They allow the interviewer to follow-up on incomplete or unclear responses by asking additional probing questions and they allow the interviewee time for reflection and clarification (Gay & Airasian, 2000; Merriam, 1998). Patton (1990) states:

> We interview people to find out from them those things we cannot directly observe... We cannot observe feelings, thoughts and intentions. We cannot observe behaviours that took place at some previous point in time. We cannot observe situations that preclude the presence of an observer. We cannot observe how people have organized the world and the meaning they attach to what goes on in the world. We have to ask people questions about those things. The purpose of interviewing, then is to allow us to enter into the other person’s perspective. (p. 196)

Creswell (2005) states that focus groups are advantageous “when the interaction among interviewees will likely yield the best information and when interviewees are similar to and cooperative with each other” (p. 215). One-on-one interviews were used with the faculty and the CMS advisers, and a combination of one-on-one and focus group interviews were used with the students. This was done to give the students the option of either participating with their peers or individually.

The interviews were semi-structured and followed interview guides (Appendices, C, D, E, F). A semi-structured interview process was used as the combination of structured and semi-structured questions facilitated explanation and understanding of questions allowing a
combination of depth and objectivity in the information obtained from the interviews (Gay & Airasian, 2000).

The students', professors' and CMS advisers' interview questions were developed based on the literature review, conversations with experts in the use of the CMS, and my eight years experience teaching using the course sites available through a CMS and working with faculty to facilitate their use of the CMS at the college. Some of the questions were used to gather demographic information, to set the context of the case, and others were designed to relate directly to the research questions. As recommended by Creswell (2005) and Merriam (1998), in order to gain depth of understanding and rich information, the main questions were open-ended and used in combination with follow-up questions and probes. The intent of this approach to qualitative interviewing was to meet the objective of the research study which was to gather a deep understanding of the perceptions about the efficacy of a CMS in learning.

Interview Process

All of the interviews followed the same process. At the beginning, the purpose of the interview was explained and participants were asked to sign two copies of the informed consent and permission to audiotape forms; one for the researcher and one for their own records. The recording device was explained and the interviewees were encouraged to be open and candid in their answers to the interview. Interview guides were used which contained the specific questions that were asked. One of the CMS Advisers declined to have the interview recorded so very detailed notes were taken during that interview. The interviews ranged from 20 minutes to an hour.
The Interview Guides were carefully followed during the interview. As a final question the participants were invited to provide any additional information, related to the use of the CMS at the college, which they wanted to contribute to the study. Open-ended questions were followed up with probes. At the end of each of the interviews the interviewees were asked if they wished to obtain a copy of transcription to validate the account of the interview and every one declined that invitation.

Survey Questionnaires

Gray and Guppy (2003) recommend two general strategies for developing a list of indicators to use in survey research: (i) a review of previous studies for appropriate indicators and (ii) talking with other informed people to help build indicators. The survey questionnaires were developed based on instruments used in previous CMS research identified during the literature review. In deciding the items to be included in the survey questionnaire a number of previous inventories were reviewed to identify the items which were relevant to the research questions of this study.

The questions used in EDUCAUSE Center for Applied Research’s longitudinal study of Undergraduate Students and Information Technology, which began in 2004 were discussed with two of the researchers. The survey questionnaire is publicly available on the EDUCAUSE website and some of the questions were adapted for use in this study. I found no evidence either in my conversations with the researchers or on the website where the survey is publicly available that indicates that the survey questionnaire has been validated. The results of the 2006 study had recently been published when this research was being designed. The questionnaires used in this study also included a number of statements which the students were asked to indicate their level
of agreement with. These statements were discussed with Hamish Coates, adapted with permission, and based on his validated questionnaire used in a study which investigated Student Engagement in Campus-based and Online Education (Coates, 2006).

**Use of Likert Scales**

When the meaning of a concept is precise the measurement of that concept is relatively simple, however, when a concept is influenced by many variables, such as is the case with learning, "measuring" that concept is a much more complex process. Gray and Guppy (2003) surmise that when assessing an individual's attitude or perception, as was the aim of this case study, "one strategy is to present a statement and then ask people whether they agree or disagree with it. The statement serves as an initial stimulus, and a set of response categories is used to measure reaction" (p. 102), and to gather information about the perceptions of the participants about the topic under study (Gay & Airasian, 2000). The survey used a forced Likert agreement scale, "strongly agree", "agree", "disagree" and "strongly disagree" In this study no middle category was used in the agree/disagree continuum. When developing the questions for this study, it was decided that since the goal of the study was to determine how the participants perceived the impact of certain characteristics of the use of the CMS on learning, that a middle category would not be used. Since every respondent had actual experience with a CMS they could not respond in the "middle". Also, the consent invited participants to withdraw or not answer (if they did not wish to) without explanation or penalty.

**Self-Reported Data**

Self reported data, the mainstay of much social science research, "requires the collection of standardized, quantifiable information from all members of a population or sample" (Gay &
Airasian, 2000, p. 280). As well, Gray and Guppy (2003) assert that the use of self-reported data involves a number of assumptions about the appropriateness of the questions and the validity of the participants’ answers. The same questions must be asked of all of the participants in order to collect comparable data. A self-report approach was used in the survey questionnaires, requiring the students to respond to a series of statements and questions. Whether or not people tell the truth and are accurate when answering questions is a conundrum faced by all researchers using the self-report in surveys. Validation studies show that misreporting is associated with the extent of perceived question threat and is very limited for non-sensitive questions (Northrup, 1997). It is important to maximize the conditions under which participants will give honest answers. This survey process was structured to promote honesty; participation was voluntary, the students were assured that participation in the study would have no bearing on their academic record and the researcher had no involvement in any of the courses in which the students were enrolled. For these reasons it is reasonable to assume that participants responded honestly based on their perceptions.

A number of actions were taken to ensure that the respondents understood the questions and would likely know the answers to those questions. There is only one CMS used at the college and 75% of the faculty, teaching in the school of business, use the CMS in their courses. It was very likely that all of the students would have taken or would be taking at least one course in which the CMS is being used. This increased the likelihood that the students would be familiar with the questions and know the answers as the questions seek to understand their experiences with the CMS in their courses. Care was also taken to ensure that the words used in the survey to describe various tools were words that the students would be familiar with. When
completing the surveys, the students had the option of selecting "was not used" if they were unfamiliar with the indicator to which the question was referring.

**Document Analysis**

The purpose of document analysis during case study research is to ground the study in the context of which the use of the CMS was being studied. Merriman (1998) contends that because documents exist independently of the research agenda, they are unaffected by the research process and are an important source of information about the context of the study. This was important to this study as there are many variables which impact the use of a CMS including the process of adoption and implementation. The analysis of the documents was used to provide a history of the CMS at the college and to uncover intentions and meaning, develop understanding, and discover insights relevant to the efficacy of a CMS in learning (Merriam, 1998). Much qualitative research is based on the view that the nature of cases is situational; documents were used to describe the context in which the CMS was situated. The documents were used in this study to furnish descriptive information, offer historical understanding and track changes and developments alluded to in the interview. They were analysed for particular references to the CMS.

Determining the accuracy and authenticity of documents is part of the research process A checklist was created to aid in the analysis of the documents. The questions on the checklist were:

- Who wrote the document?
- Why it was written?
- Who it was written for?
• When it was written?

• To whom was it distributed?

• What were the purposes for which it was produced?

• Does it shed any light on the adoption and implementation of the CMS at the college, pertinent to the purposes of this research?

**Pilot Study**

Pilot testing was an integral part of the development of the interview guides and the survey questionnaires. The pilot studies were used to gain feedback on the relevance of the questions on the interview guides, to ensure the clarity of the questions on the interview guides and survey questionnaires, and to identify practical problems in administering web based surveys to the students and to determine if any questions or statements were perceived to be leading (Creswell, 2005). As Teijlingen, Hundley, and Graham (2001) observed, pilot studies are a crucial element of good study design.

After the first drafts of the interview questions were developed, the questions were emailed to six faculty members at the college where the research was being carried out and one faculty and three administrators at other colleges who were actively involved in the use of the CMS at their respective colleges. They were asked to review the questions and to provide feedback either by email or telephone. Based on this feedback some minor adjustments to the interview questions were made. The wording of some of the questions was clarified to make them easier to understand. There was also some discussion about whether the system should be referred to as a “course management system” or a “learning management system” as the software used at the college is referred to, by the software vendor, as a learning management system.
CMSs and LMSs are often used interchangeably in the literature. The very notion of “managing learning” conflicts with the latest research on learning. Learning is not a process to be managed; it is by nature multi-faceted and chaotic (Bransford et al., 2000; Keeling, 2004). The discussions also identified that the college’s documents refer to the software as a CMS and not a LMS and it was decided to refer to the system as a CMS. The data collected during the pilot testing were not included in the study data.

A convenience sample of two classes, of students in the second semester of the three year business diploma programs, during the spring 2007 semester was used for the pilot study. Forty-six students completed the two surveys. Much time was spent discussing the questions with the pilot group to ensure that they understood the meaning of the questions. Some words, and the structure of some sentences, were changed based on their recommendations. The participants indicated that the second survey was too long and that some of the questions were unclear. They also suggested that a few of the questions should be reworded or rephrased. The questionnaire was modified as suggested. A paper based survey was used for this pilot study.

After the questionnaire was modified and converted into a web based format a second pilot was conducted. The purpose of this pilot was two fold – to identify any technical issues that may occur during the administration of the survey and to get feedback on the usability of the web based interface. A convenience sample of 19 students working at the Student Help Desks at the college, who were experienced with the use of the CMS, participated in this aspect of the pilot study. The students were asked to provide feedback on how the survey was displayed in different browsers, on the ease of opening the link to the Letter of Informed consent, and they were also asked to test saving and then revisiting the survey and to ensure that they were not allowed to proceed with the survey unless they checked the box giving consent to participate in the study.
Some minor technical glitches were identified and fixed, and some of the questions were reformatted to ensure that they were easy to understand. The students participating in this pilot were also asked to give feedback on the clarity of the revised questions. The participants indicated that all of the questions were clear. None of the students who were involved in the pilot study participated in the actual study.

Data Collection

Multiple data collection methods and three different populations were used to collect data for this study. In Phase 1 of the main study all the students enrolled in the first semester of the three year business diploma programs, were surveyed to collect demographic information about the cohort under study and to find out about their previous experience with Internet based technology tools in their learning experience. Faculty likely to be teaching the students who were invited to participate in the study and CMS advisers who had played a role in either the adoption and or the implementation of the CMS at the college were interviewed during Phase 2 of the study. In Phase 3 which was done in conjunction with Phase 2, documents were collected and analysed. Phase 4, the largest and most significant part of the study, consisted of surveying the students who had completed first semester and were in the second semester of their studies at the college and interviewing a sample of the students who completed the survey.

Students

All 1,241 students enrolled in the first semester of the 2007 academic year in the three-year business diploma programs at the college were invited to participate in the study. At the college it is mandatory for the students to use their college issued e-mail accounts for all college communication; therefore students were contacted using their college email addresses. With the permission of the deans, an email was sent to the Information Technology and
Telecommunications (ITT) department requesting a list containing the e-mail addresses of all of the students who were enrolled in the first semester of the three year diploma programs in the school of business. To maintain confidentiality this e-mail list was sent directly to the Office of Institutional Research and Planning. The Vovici survey software which was used to administer the survey was also used to send out the invitations to participate in the research.

First Survey

The 1,241 students who were enrolled in the first semester of the three year business diploma programs were sent an e-mail, using their college e-mail accounts on the third day of the first semester with an invitation to participate in the study (Appendix G). This email invitation included a link to the Letter of Informed Consent (Appendix H) and a link to the survey (Appendix A). The first screen of the survey again explained consent (Appendix I). The students were asked to complete the first survey before Day 10 of the semester. Three reminders were sent to the students. This was done automatically through the Vovici software.

The students were not offered any incentives to complete this survey. At the same time that this survey was administered, all the first semester students at the college, including these students, were also invited to complete the Ontario College Student Engagement Survey which offered the opportunity to win a number of prizes, including $1,000, PSPs, ipods and HMV gift certificates. It is very likely that this affected the response rate of the survey for this study. One hundred and fifty nine (159) students of the 1,241 students for a response rate of 12.8% responded to the survey. Respondents who completed less than 10% of the questions were excluded from the analysis. Nine respondents were excluded for this reason. The research office
noted that it was a common occurrence that a number of respondents begin a survey and quickly lose interest, therefore not completing the survey.

Second Survey

On the first day of the second semester a request was sent to the ITT Department requesting a list of the email addresses of the students who were registered in the second semester of the three year business diploma programs. It was determined that it was necessary to request a second list as there are a considerable number of students who do not continue on to the second semester. Nine hundred and twenty seven (927) students were registered in the second semester and were invited to respond to the second survey. To encourage participation in the second survey and to inform the students that the survey was indeed a survey approved by the college, as at that time the college was experiencing an increased amount of spam sent to college, e-mail addresses, flyers were distributed to the students informing them that they would be receiving the invitation to participate in the second survey (Appendix J). All the students who are registered in the second semester of the three year business diploma programs are required to take one of two accounting courses. After consultation with the chair of the research ethics board at the college, an email was sent to those nineteen professors indicating that the flyers would be left in their mail boxes and requesting that they make those flyers available to the students in those classes without any other comment or encouragement (Appendix K). At the beginning of the second week of classes 927 students, i.e., all the students registered in the second semester, were sent an email inviting them to participate in the second semester survey. This email also included a link to the Letter of Invitation and to Survey Two (Appendix L).
At the suggestion of some of the faculty teaching in the second semester, and the students working at the Student Help Desks, paper surveys were also made available to the students. It was felt that the students were inundated with requests to complete online surveys and therefore they might be more likely to complete a paper based survey. One of the students in his final semester at the college, volunteered to distribute and collect these surveys. Three hundred and fifty seven students, for a response rate of 38.5%, completed the second survey questionnaire; 229 online and 128 on paper. None of the submitted questionnaires was excluded from the Survey Two analysis.

**Interviews**

Originally it was the intent to interview the students using focus groups because it was assumed that the students would be more willing to participate with their peers. Due to scheduling issues both focus groups and individual interviews were carried out. The students were very comfortable responding to the questions, in both situations. The final agenda for the interviews was determined only after a preliminary analysis of the results of the two surveys. The recruitment of the interview participants was by self-selection rather than by random sampling. The final question of Survey Two asked the students to indicate their willingness to participate in focus group interviews. Fifty-six students volunteered, by responding yes, to the question on Survey Two which asked them to indicate their willingness to be contacted to participate in an interview. The text of that question stated that pizza would be served during the interviews as a thank you. All fifty-six students were contacted in February, the week after Reading Week, with an invitation to participate in the interviews and a list of times that the focus group sessions were planned (Appendix M). They were asked to respond indicating the time and day of the session
that would be most convenient for them to attend. If none of the suggested times was suitable they were asked to indicate some other times and days that they would be available.

Of the 56 students, 15 responded with a day and time that they would attend the focus group session and three students responded saying that due to scheduling conflicts they could not attend at the times indicated. A second email was then sent to the students who had not responded to the first email and to those who had conflicts with the original dates and times. This email contained some additional dates and times for focus group sessions (Appendix N). The students were also notified in that email that it was not practical to have a pizza lunch at a one-on-one interview so instead they would be given a Tim Horton's gift certificate for five dollars as a thank you. Interviews were scheduled with 21 students and 17 students attended the interview sessions. Merriam (1998) states that “Lincoln and Guba (1985) recommend sampling until a point of saturation or redundancy is reached” (p. 64). After interviewing 17 students the decision was made to conclude the student interview process because no new information was forthcoming from the interviewees.

To accommodate the schedules of the students, there were five individual interviews, one with two students, two with four students and one with three students. All the interviews used a semi-structured approach. At the beginning of each interview, the participants were reminded to the aim of the study, they were asked if they had read the letter of information that was attached to the invitation to participate in the surveys. Additional copies of the letter were available at the interviews. The students were asked to sign two copies of the consent forms (Appendix O). The same consent form was used for all interviewees; students, faculty and CMS advisers.
The order and phrasing of the questions varied somewhat depending on the way that the students answered them. The students were all asked to respond to the same questions, but sometimes the questions were asked more than once to give everyone a chance to respond. Great care was taken not to be over-directive. At the same time I made a continual effort to be alert to comments made by the students which related directly to the research questions, and probed these more fully. In addition to the interviews being recorded, notes were taken during the interviews and a brief interview report was made immediately following each interview. All the students agreed for the interviews to be audiotaped. Pizza lunches were served at the group interviews and the students who were interviewed individually received five dollar Tim Horton’s gift certificates in appreciation of their participation.

Faculty

The professors teaching the courses in which the full time students in the first semester of three-year diploma programs in the school of business are enrolled in were invited to participate in the study. The school of business maintains an email listserve of all of the full and part time faculty teaching within that school. The list is regularly used to send out messages to the faculty. There was no practical way to distinguish between all of the faculty teaching in the school of business and only those who were teaching students enrolled in the first semester of the three year diploma programs. During the second week of classes, an email was sent to the list. The invitation email (Appendix P) with the Letter of Information (Appendix Q) and consent forms (Appendix O) attached, clearly indicated that only those faculty who were teaching students in the first semester of the three year business programs were being invited to participate in the study. The email invitation was sent during the second week of the semester. This time was
specifically chosen as it was at the beginning of the semester, when the professors were not likely to be preoccupied with marking assignments.

The professors who volunteered to participate in the study were asked to send an email directly to the researcher indicating their willingness to do so. Once that email was received by the researcher, the individual professor was contacted by email and asked to choose a time, date and place within a one month time frame, to be interviewed. Twenty-three faculty responded, out of approximately 125, indicating a willingness to participate in the study. One never set up a time to be interviewed and one person did not show up for the scheduled interview and did not respond to two email messages asking if the interview could be rescheduled. Two professors did not fit the criteria for participation, because they did not have any contact with the students in the first semester of the three year business diploma programs. Nineteen faculty were interviewed. Sixteen of the professors were using the CMS and three of them had never used the CMS.

CMS Advisers

When the decision was made to adopt the CMS at the college a committee was formed to guide the adoption and implementation process. The committee, comprised of administrators from ITT and some of the academic areas, faculty and support staff working within ITT (referred to as CMS Advisers for the purposes of this study), met regularly. The names of the committee members and minutes from those meetings are public. An email list of those names was used to send an email invitation (Appendix R) to 12 potential participants with the Letter of Information (Appendix S) and consent forms (Appendix O) attached. The email was sent by the research assistant in the Office of Research and Innovation. Those who were willing to participate in the research were asked to send an email directly to me indicating their willingness to do so. Once
that email was received, the volunteers were contacted by email and asked to choose a time, date, and place within a one month time frame, to be interviewed. Six CMS advisers volunteered to be interviewed and interviews were conducted with the six volunteers.

The CMS adviser interview questions were designed to gather information about the decisions surrounding the adoption and implementation of the CMS at the college. The purpose of these questions was to set the context for the study and to identify any variables that may influence the perceptions of the students and faculty.

**Documents**

The interview and survey data supplemented each other and were corroborated by documentation, such as the request for proposals (RFP) used to purchase the CMS, the college’s eLearning Plans, and a variety of archival records including statistical information about the use of the CMS at the college.

**Data Analysis**

Johnson (1995) has suggested that research which focuses on the use of technology in education should probe for deeper understanding rather than on the examination of surface features. "Qualitative methodologies are powerful tools for enhancing our understanding of teaching and learning, and they have gained increasing acceptance in recent years" (p.4). The qualitative approach is appropriate for this study because such an approach is suitable when the purpose of a study is to better understand any phenomenon and to gain more in depth information about something, such as this, that may be difficult to measure in a qualitative manner (Gay & Airasian, 2000; Patton, 1990).
Quantitative research focuses on quantifying relationships between variables. In descriptive quantitative research such as this, variables are measured as they are and associations between variables are determined and analysed. In quantitative research methods instruments are used to measure the variables in the study. After collecting data using these instruments and analysing the data the researcher can draw conclusions about the effects of these variables on the central phenomenon being studied (Creswell, 2005). In this study surveys were used to collect quantitative data which were analysed using descriptive data statistical analysis techniques. Interview data were supplemented with survey data and factual information collected from current and archival college documents and records.

The quantitative data were analysed using the analytical tools found in the Statistical Package for the Social Sciences (SPSS) software. The survey results, stripped of all identifiable participant information, were exported to SPSS by the research office and sent to me. A research assistant entered the data from the paper based surveys into the SPSS using a template provided by the research office. The questionnaires were checked by me to ensure that there was no personal information on the questionnaires before they were given to the research assistant. If email addresses were provided by the respondents in response to the final question which asked if they would like to be contacted for an interview, these were recorded by me and blacked out on the questionnaire. The paper based responses, once entered into the SPSS template were checked and rechecked by me to ensure that the responses were accurately recorded. The research office did a preliminary analysis of the paper-based and online data sets to determine whether or not there were any statistically significant differences in frequency, mean, modes and standard deviations between the two sets of data. The data sets were not statistically different so they were combined for analysis.
Data integrity was checked by visual inspection to examine any data entry and coding errors. An expert in the use of SPSS and statistical analysis was hired to recheck the SPSS data and to do the SPSS analysis. Three statistical tests were performed; descriptive analysis, independent-samples $t$ test and ANOVA. The descriptive statistics, frequency, percentage, mean and standard deviation described the distributions of data and relationships between the variables. The independent sample $t$ test was used to evaluate the difference between the means based on gender. The alpha was set at 0.05 for this study (Gay & Airasian, 2000). Analysis of variance (ANOVA) was the inferential statistics procedure used to compare the mean differences in the responses to survey questionnaires based on age group.

The recordings of all the interviews were listened to several times, brief notes were recorded during the interviews and the interviews with the faculty and CMS advisers were transcribed. The transcriber signed a confidentiality agreement (Appendix T). Interview reports were prepared for the interviews with the students. The transcripts and interview reports were read and re-read, by me and read by and discussed with my thesis supervisor until emergent qualities of the student experiences with the CMS course sites were identified.

The interview data were coded using a constant comparative approach to determine the sub-categories, properties and relationships existing in the main themes which had been identified based on the literature review. After the interviews and written comments from the surveys had been coded, they were reanalyzed to synthesize and determine the relationship among the themes. The key findings relevant to each particular research questions were then identified. Once all of the data had been presented, the report along with the transcriptions of the interviews, were sent to a professor at the college, who had not participated in the research study for her to review my interpretation of the findings. This person was previously an academic chair
at the college and was a pioneer in encouraging faculty to adopt the CMS and to adapt their content for use on the course sites. We met to discuss the findings and other than a few questions of clarification she did not find any discrepancies in my interpretation of the data and was in agreement with the emergent themes.

West et al. (2006, 2007) used a qualitative approach to explore the experience of instructors and students at Brigham Young University as they adopted a course management system and integrated it into their teaching. Their reports, which are published in *Educational Technology Research & Development*, presented a portion of the results of that study. I contacted Dr. West to discuss the approach and the questions used in the evaluation and he sent me a copy of the full evaluation report. The thematic analysis used in the full evaluation report was useful in framing the context for the analysis of the interview questions used in this study.

**Triangulation of Data**

This case study utilized collection of both qualitative and quantitative methods of data collection. The qualitative methods provided the opportunity to gather data from a large number of students, while the qualitative methods permitted an in-depth exploration of the perceptions of fewer individuals. As Denzin (1989) points out, the strength of this mixed data design is that it combines the advantages of each kind of data. He argued that:

> by combining methods, observers can achieve the best of each while overcoming their unique deficiencies and that “between-method” triangulation can take many forms, but its basic feature will be the combination of two or more different strategies in the study of the same empirical units. (p. 244)

Gay and Airasian (2000) also advocate that triangulation is “a form of cross validation that seeks regularities in the data by comparing different participants, settings and methods to identify recurring results” (p. 252). The use of multiple sources of evidence enabled
discrepancies and contradictory evidence to be examined. As well triangulation was used to validate the data collected. The data from different individuals: students, faculty and CMS advisers; types of data: survey questionnaires, interviews and college documents and reports; were corroborated and analysed. By including the perceptions of faculty and students as well as information from CMS advisers and college documents this study achieved triangulation.

**Establishing Credibility, Reliability and Validity**

Merriam (1998) states that regardless of the type of research, validity and reliability are concerns that are approached “through careful attention to the study’s conceptualization and the way in which data were collected, analysed and interpreted, and the way in which the findings are presented” (p. 200). Internal validity concerns whether or not the findings are congruent with reality and that they capture what is really happening. Triangulation and peer examination were used to enhance the face and content validity of the study. Colleagues were asked to comment on the findings as they emerged (Merriam, 1998). Content validity was achieved by sending the questions used in both the interviews and the survey questionnaires to experts in the use of the CMS both at the college being studied and at two other colleges. Pilot testing of the surveys also served to ensure face and content validity of the questionnaires. The preliminary findings of the study were presented at two conferences, one that focused on the first year experience in colleges and universities and another about the use of technology to advance learning at Ontario colleges. At the end of the presentations the findings of the study and my interpretation of the findings were discussed at length with colleagues at other institutions.
**Construct Validity**

Construct validity is especially problematic in case study research. It has been a source of criticism because of potential investigator subjectivity. Yin (2003) proposed three remedies to counteract this: using multiple sources of evidence, establishing a chain of evidence, and having a draft case study report reviewed by a key informant. All three of these processes were followed in this study. A chain of evidence was maintained in order to increase the reliability of the information in the case study. This allowed me to follow the "derivation of the any evidence, ranging from initial research questions to ultimate case study conclusions" (Yin, 2003, p. 105). The chain of evidence also allowed for construct validity as I was able to move from one part of the case study process to another with clear cross-referencing to methodological procedures and to the resulting evidence. The use of multiple sources of data to confirm the findings was an important aspect of this study. By using multiple methods of data collection and analysis, triangulation strengthened the reliability as well as the internal validity of the study (Merriam, 1998).

**Ethical Considerations**

The research adhered to the ethical review protocols at both the University and Toronto and Seneca College. A letter was sent to the college president asking for permission to identity the college in the reporting of the data. This was done because the college is seen as a leader in the use of its CMS and has been mentioned in promotional material used by the CMS company; therefore it was felt that it would not be possible to report on the findings of the study without the possibility of the college being identified. Permission to identify the college was granted by the president.
All necessary steps to ensure non-identifiably and confidentiality of the participants in the study were taken. None of the documents analysed in the study included any personal or confidential information. The students, faculty and eLearning Advisers were informed that no names would be reported in the study and that all participants would be referred to by a pseudonym or a coded number in the dissertation and in any oral or written reports on the research. The interviews were transcribed and the transcriber signed a confidentiality agreement. The data from the survey questionnaires which were entered into the SPSS template and analysed by research assistants did not include any personal or confidential information. The students participating in the focus group interview sessions were requested to keep the identification of the other participants and the discussions during the focus group confidential.

During the study, all data related to the interviews, and all summary reports were stored in a secure location to which only I had access. Within one year of the successful completion of all of the requirements of the doctoral program all confidential data will be destroyed by me. Written records, audio tapes of the interviews and survey results were stored in a locked cabinet. The survey results were stored in an SPSS data base that is password protected. All data stored on a computer were stored in password protected folders. When the data are no longer needed the paper records will be shredded, the audio recordings and any computer records will be deleted from the computer hard drives. Back up copies of the data were stored on memory sticks. The memory sticks will be reformatted once the research findings have been reported.

**Limitations**

There were no limitations to this study beyond those for any case study. A large number of students participated in the study; the college is well into the use of the CMS. Students from
many different high schools and backgrounds enroll in the business programs. Purposeful sampling, which was used for this study can be viewed as both strength and a limitation of the study. While a different group of participants may have different perspectives about the characteristics of a CMS that affect learning, purposeful sampling ensured that all of the participants in the study have experience in the use of a CMS. The focus of this study, learning, is a complex phenomenon strongly influenced by the context in which it takes place; therefore no attempts are made to generalise the research findings beyond the normal boundaries of a case study.

Summary

This chapter described the research methodology, the research procedures, and the rationale behind the design of this case study research. Using a mixed-methods, case study design students were surveyed and interviewed, faculty and CMS advisers were interviewed and college documents were analysed to examine the efficacy of a CMS in learning at one large, urban, muticulturally diverse college in Ontario, with a history of CMS use. The aim of the study was to understand, elucidate and discern the characteristics of the use of a CMS that enhance learning and those that create barriers to learning based on the perceptions of the students enrolled in the three year business diploma programs and the faculty teaching the courses those students were likely to be enrolled in. The surveys and interviews with the students comprised the major aspect of the study. The findings of the document analysis, survey questionnaires and interviews are presented in Chapter Four and analysed in Chapter Five.
Chapter Four:
Findings

This chapter presents the research findings from the survey questionnaires, focus group interviews with students, interviews with faculty, interviews with the CMS advisers and the analysis of college documents pertaining to the adoption, implementation and integration of the CMS at the college. The chapter is organised into four main sections. To set the context of this case study, the chapter begins with a description of, and background information about, the case based on the findings from the document analysis. As described in Chapter Three, the principal component of this study is comprised of the surveys and focus group interviews with students, these findings are presented in the second section, followed by the findings of the interviews with faculty and the CMS advisers in sections three and four. The main focus of this chapter is to present the research findings. The findings will be analysed in relation to the research questions, in Chapter Five. Relationships between the perceptions of the students and the faculty about the characteristics of the use of the CMS that impact learning and those that create a barrier to learning will also be examined in detail in Chapter Five.

In this case study research, the data are presented through the perspective of the researcher. The data presented are richly descriptive. Words, tables and graphs are used to present what has been found regarding the perceptions of students and faculty, at one Ontario College, in relation to the efficacy of a course management system (CMS) in learning. As Merriam (1999) advocates, data in the form of the participants’ own words, direct citations from documents and excerpts from audiotapes are used to present the findings of the document analysis, the interviews and the open ended questions on the survey questionnaires. The data
from the survey questionnaires are presented in the form of percentages. T-tests and ANOVA statistics are used to illustrate the relationships among the variables based on age and gender.

**Document Analysis**

**Setting the Context**

The intent of the document analysis was to lend contextual richness to the study by furnishing historical and descriptive information about the adoption and integration of the CMS at the college, as well as to gather information about the purpose and context of the use of the CMS at the college. The documents analysed included the:

- Request For Proposals (RFP) which was used to purchase the CMS currently used by the college
- College’s eLearning Strategic Plans for 2001 – 2003, and 2006 – 2009 (there was no plan for 2004-2005)
- Meeting notes for the CMS Working Group 2001 – 2004
- CMS usage statistics
- Meeting notes of three campus based technology and teaching committees

The documents were analysed to gather information about the way in which the CMS was selected, how it was received, the expectations of the impact of the CMS at the college, adoption and implementation issues, and proposed uses of the CMS.
Selection of the CMS

The Department of Information Technology and Telecommunications, formerly the Department of Computer Services, was the driving force behind the purchase of the college-wide CMS. At the time that the decision was being made, the Centre for New Technologies in Teaching and Learning (CNTTL) which was created in 1997, reported, through the Manager of the Centre, to the Director of Computer Services. There were instructional designers (a faculty role), support staff and several graphic design and programming students working in the Centre. The Centre assisted faculty in the creation of Internet based courses and used a variety of course management systems and other web based tools to accomplish this.

In the minutes of the May 12th, 1999, meeting of the College Information Technology Council (IT Council) it is noted that an “Academic Learning Management System (LMS) is critical for the learning process”. A discussion at that meeting revolved around the concern that “the academic side felt that they were not being represented properly” in IT decisions that directly impacted them.

In July of 1999, the Director of Computer Services submitted a strategic initiative, to the College’s Senior Executive Committee, proposing that the college purchase an integrated Learning Management System. According to the minutes, the goal of the system would be “to create a fully integrated academic computing environment to increase efficiencies in process.”

The proposal stated that the first phase of creating this environment would include the development of a grade book system; a tracking system for faculty and students, and a faculty “Virtual Desktop” with access to class lists, email lists, automated web page creation and posting and testing and collaboration (chats and discussion groups) tools. This initiative was subsequently approved by the Senior Executive Council.
The November 3rd, 1999, IT Council's meeting minutes discussed the need for a common platform for Internet Based Learning development. A report, presented at that meeting, from the IT Planning Work Groups states:

The College does not have an up-to-date IT Plan that would contain tactical and strategic goals. With technology changing constantly we need to conceptualize a strategic plan for IT systems. The strategic plan would reflect the future regarding learner management systems and our core business that we need to build for the College. In order to prepare the IT Strategic Plan we will need to research the tools that students will need, what will they need to learn and what will be the appropriate technology. Ideally, the plan will address service issues and what we expect the larger picture with students, faculty and staff will be in the future.

It is noted, as part of the discussion, that “communication has been deemed vital for ITT and the community”. It was proposed that the Council should establish a working committee with consultation from CNTTL and the Centre for Professional Development in an effort to determine the technologies that were needed for faculty. This committee, lead by the Manager of the CNTTL, was given a three month time-line to: “develop some profiles to analyse software; with Strategic Initiatives money, purchase some products to evaluate; communicate to Council members by e-mail some software packages that members and faculty can test; and, check on similar packages used and tested at other colleges.”

At the next meeting, November 26th, 1999, of the College IT council, the committee recommended that the College investigate the purchase of a Learning Management System (LMS) “that has the ability to share and manage information in all academic and administrative aspects for the College environment.” It was noted in the minutes that the LMS should have tools that are “seamless, integrated and easy to use both locally and remotely.” To identify the best LMS the committee suggested that working groups be created to evaluate the major products available on the market. The committee was comprised of the ITT Managers, five faculty, and
the Chief Information Officer (CIO). It was suggested that working groups be created to evaluate
the major products on the market at that time. The major stakeholders of such a system, defined
by the task force were:

- Registration
- ITT (Client Services, CNTTL, Administrative Systems, Library Services)
- Faculty/Faculties
- Students/Student Groups
- Test Centres
- Marketing
- Finance
- Administration

In the minutes of the November 26th, 1999, meeting, it was also reported that the CIO
said that “we are at the point where we have looked at a lot of different content development
tools and we need to make a decision to go in one direction or another.” The minutes also made
reference to the CIO saying that “ITT is to identify the criteria for enterprise and determine the
best long and short-term investment, then recommend to the taskforce the most compatible
product.” In the next sentence, the minutes noted that once “the best technical product for [the
college] has been identified (Blackboard has been identified as being best technically overall) we
will move to course development application evaluation.” There is no indication in the minutes
of how the product would be evaluated.

In March 2000, a Request For Proposals (RFP) was issued, by the Department of
Information Technology and Telecommunications, inviting applicants to submit proposals for an
integrated LMS. The intent was for “this system to be a college wide resource to help support teaching and learning”. In this document it was noted that the college wanted to pursue “partnership status” with the successful vendor as the college desired to be “at the leading edge of these emerging technologies”. The RFP listed the following essential elements of the proposed LMS:

- web and standards based system integrated with our Enterprise system
- customizable course content delivery and management
- ease of use for students, faculty and others
- web-based assessment with electronic grade book capabilities
- web-based administration with multiple levels of access
- automatic user and subject management and maintenance
- integrated student environment for all subjects being studied
- integrated communication and collaboration tools
- integrated community aspects
- statistics and system-wide user tracking
- a college portal integration

It stated that “a key feature of the proposed LMS was the ability for integration with the college’s enterprise system” and one of the “strongest” features requested was an electronic grade book with web-based assessment tools.
In August 2000, the Blackboard Enterprise CMS which included a portal and access to course sites was purchased by the college. A Blackboard Advisory committee, comprised of two ITT managers and the Associate Registrar, was formed in August 2000. The role of this committee was to determine the best way to integrate the Blackboard Enterprise system with the registration and administrative systems already in place at the college.

Factors Influencing the Adoption, Implementation, and Integration of the CMS

In June 2001 a Blackboard Working Group was formed. The intent was for the working group to be as representative of the college community as possible. Membership included ITT managers, faculty from the Centre for Professional Development and the faculties of business and technology, a dean, the academic chairs from 4 different areas, the faculty who were Instructional Designers in the CNTTL, and support staff from ITT and the Faculty of Continuing Education. The June 19th, 2000 minutes from the Group’s first meeting noted that the strategic eLearning plan’s target for the implementation of Blackboard was September of that year. The November 6th, 2001 minutes noted “we must make a greater effort at the working group and committee level to be representative of the different departments (that is, academic, service and administrative) and roles (that is, students, instructors, support and administrative staff) at the College.” Later in the meeting, the name of the group is officially changed from the Blackboard to the My.Seneca working group as the college had “branded” the Blackboard system, My.Seneca, in a unique arrangement made with the company.

The proposed mandate of the working group was to:

• co-ordinate the collection and reporting of outstanding issues and user data;
• prepare reports for the My.Seneca-Blackboard Work Group, i.e. summary of student feedback, faculty survey results;

• refer items to appropriate college areas, as directed by the My.Seneca-Blackboard Work Group;

• ensure that specific councils are kept informed about My.Seneca issues, as directed by the My.Seneca-Blackboard Work Group;

• anticipate and articulate future college needs vis-à-vis BB, i.e., take a pro-active as well as problem solving role.

A review of all the recorded minutes of the committee revealed that the meetings focused on discussions about the technical issues with the systems as well as the challenges and logistics related to faculty support and training.

In the Fall of 2001, Blackboard version 5.5 was piloted by a group of professors. The pilot was in preparation for making the system available to all faculty, each course with a unique course site, in January 2002. It is stated in the pilot report that data were gathered by the My.Seneca/Blackboard Implementation Work Group. The goal of the pilot was “to understand how the CMS was actually being used in the community, to identify ways in which to enhance the experience of using the CMS for both faculty and students, and to ensure that users are properly supported both academically and technically.” The results from this pilot indicated that the users found the CMS easy to use and they liked its “uniformity”. There was concern about the “slowness” of the system and the need for standards for course development. Twenty six professors responded to the Pilot survey. These professors, the early adopters, were using the CMS course sites, to post documents, announcements and grades, as an adjunct to what they
were doing in the classroom. There were a number of problems encountered with the gradebook functionality, but for the most part they were satisfied with their experience with posting documents and announcements. About a third of the professors were using the discussion board, and the online testing functions.

About a year later Blackboard released a new version, Version 6, with added functionality. This version was tested by both the college and the company and the system was upgraded to this new version in January 2003. Many problems were encountered with this version, and it was decided that the testing process was not rigorous enough. Course data were lost and damaged and even though ITT installed many software patches provided by Blackboard the lost and/or damaged data were generally not recovered or fixed. Many of the early adopters of the system stopped using it because of the problems. In 2003, the college had one of the five largest implementations of the Blackboard system, in the world, and Blackboard technical support staff worked very closely with the college to try to resolve the issues.

By the Fall 2003 semester the majority of the outstanding technical issues from the Winter upgrade were resolved. The system stabilized and many of the performance issues with slow loading times and lost data were resolved. The college had played a pivotal role in working with Blackboard to fix the problems and was seen, by the external CMS community, as a leader in the adoption and implementation of a CMS. The college is highlighted in a number of Blackboard Client Profiles and institutions who were considering purchasing the product sought out the advice of the My.Seneca team. The minutes from the October 2003, My.Seneca meeting notes that “there have not been many issues for students this semester”. The release of Blackboard Version 6.1 was also announced at this meeting.
In November of 2003, the mandate of the Working Group was revisited and it was recommended that:

- there should be student representation on the committee;
- there should be faculty sub-committees based at the three main campuses. These committees should focus on discussing best practices for using the course sites with a goal of increasing faculty adoption of the system;
- this committee is the place to share concerns, problems and information;
- the committee should send recommendations to the Deans, Chairs, Directors committee.

The working group met monthly until the Fall of 2006 when the committee was dissolved. It was the intent that the three campus-based technology committees would continue to meet and collaborate to promote best practices and facilitate the use of the CMS course sites.

By the Fall of 2003, a course site was created for each official course offered at the college. These courses were available to the faculty, but not necessarily available to the students. It was the professor’s choice, whether or not to use the course sites and make them available to the students. Course sites were accessed through the college’s portal. A college username and password was required to access the portal. The Student Information and Registration System as well as the Administrative Systems were all accessible through the portal. There were modules on the portal that gave the students access to college announcements, the library web services, their timetables, and to a host of other modules that provided information about everything from horoscopes to locker rentals. By 2004, the college was actively involved as a beta testing site and product development partner for Blackboard.
Every year the college has the opportunity to include five college specific questions on the Student Satisfaction Key Performance Indicators Surveys, required of the colleges by the Ministry of Training, Colleges and Universities. In 2002, the students were asked questions one and two below and then in 2003 and 2004, question three and four, specific questions about the use of the CMS course sites were added:

1. I would like the opportunity to take one or more courses on-line (over the Internet).
2. For some of my courses, I would prefer to have a combination of both in-class and on-line (Internet) learning opportunities.
3. I am satisfied with my experience using My.Seneca (the Internet) as a means to obtain information about my courses.
4. I am satisfied with my experience using My.Seneca (the Internet) as a means to obtain information about services and resources at Seneca.

The responses to statements One and Two showed a marked difference between 2002 and 2003, as indicated in Table 1. The number of students who responded to the questionnaire was not mentioned in the announcement to the college with the questionnaire results. In 2002, 39% of the students either agreed or strongly agreed with the statement “I would like the opportunity to take one or more courses on-line.” In 2003 there was a significant increase with 61% of the students agreeing or strongly agreeing with the statement. In 2004 this desire remained almost the same.
Table 1.

**I Would Like the Opportunity to Take One or More Courses On-Line (Over the Internet)**

<table>
<thead>
<tr>
<th>Agreement with Statement</th>
<th>2002 %</th>
<th>2003 %</th>
<th>2004 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>11</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Agree</td>
<td>28</td>
<td>44</td>
<td>46</td>
</tr>
<tr>
<td>Disagree</td>
<td>45</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>16</td>
<td>12</td>
<td>10</td>
</tr>
</tbody>
</table>

As shown in Table 2 the preference to have a combination of both in-class and on-line learning opportunities were similar to the preference for having a fully on-line course. In 2002, 67% of the students disagreed or strongly disagreed with the statement, while in 2003 and 2004 the preference of having a combination of both in-class and on-line learning opportunities was almost similar with 66% (2003) and 67% (2004) of the students agreeing or strongly agreeing with the statement.

Table 2.

**For Some of My Courses, I Would Prefer to Have a Combination of Both In-Class and On-Line (Internet) Learning Opportunities**

<table>
<thead>
<tr>
<th>Agreement with statement</th>
<th>2002 %</th>
<th>2003 %</th>
<th>2004 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>11</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Agree</td>
<td>26</td>
<td>48</td>
<td>49</td>
</tr>
<tr>
<td>Disagree</td>
<td>46</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>17</td>
<td>11</td>
<td>10</td>
</tr>
</tbody>
</table>
The response relating to satisfaction with My.Seneca was remarkably similar in the two years for which the question was asked (Tables 3 and 4), and showed high approval ratings. In 2004, 81% of the respondents strongly agreed and agreed that they were satisfied with their experience using the CMS as a means to obtain information about their courses, and 76% agreed or strongly agreed that they were satisfied with their experience using My.Seneca as a means to obtain information about services and resources at the college. In 2005, the college decided that given the consistent positive response, it was unnecessary to continue asking these questions.

Table 3.
I Am Satisfied With My Experience Using My.Seneca (the Internet) as a Means to Obtain Information About My Courses

<table>
<thead>
<tr>
<th>Agreement with statement</th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>26</td>
<td>28</td>
</tr>
<tr>
<td>Agree</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>Disagree</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Don’t know</td>
<td>6</td>
<td>5</td>
</tr>
</tbody>
</table>
Table 4.

*I Am Satisfied With My Experience Using My.Seneca (the Internet) as a Means to Obtain Information Services and Resources at Seneca*

<table>
<thead>
<tr>
<th>Agreement with statement</th>
<th>2003 %</th>
<th>2004 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>19</td>
<td>21</td>
</tr>
<tr>
<td>Agree</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td>Disagree</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Don’t know</td>
<td>10</td>
<td>9</td>
</tr>
</tbody>
</table>

In the Fall of 2005, when presented with a proposed fee increase, the student federation refused to agree to a three year increase in the IT fee because they felt that the CMS was not being adequately used by the professors. In November 2005, the students, at a meeting of college administrators and the Student Federation Council, related their perception that many of the professors were not using technology in their teaching. Although anecdotal, they were of the impression that a number of professors made the CMS course sites available to the students, but did not utilize any of the features of the sites, so the sites were “empty”. They wanted to know what the college would do to “make” the professors use the CMS sites for all of their courses. The students were also concerned about the "level" of usage in terms of just turning on the course, or only using announcements. There were very clear expectations, expressed at a series of meetings, that they felt that faculty should be doing more with the course sites. After much discussion the students agreed to a one year increase, instead of the three year schedule of previous years. In the Fall of 2006 the same concerns were again expressed by the students.
**purposes for using the cms for learning**

The eLearning Strategic Plan of May 2001, the first plan of its kind at the college, was developed to address one of the goals of the College’s Strategic Plan for 2001 – 2003; “to lead in innovation by creating a dynamic, state-of-the-art learning and working environment.” This eLearning strategic plan, only circulated among college administrators and the staff and faculty working within the CNTTL, stated that “the college will make classroom and web-based resources available to support all full- and part-time courses”. The plan noted that there were several eLearning projects, creations, developments and initiatives that were current at the college at that time. One of the academic initiatives stated in the plan was that: “The Blackboard system has been adopted to enable faculty to utilize a variety of eLearning options in course delivery and communication”. Some of the actions to implement the eLearning Plan included:

By September, 2001:

- Develop and introduce an annual training plan so that by 2003 all full-time faculty will have completed an introductory-level training program and 25% of faculty will have had training re the design and delivery of online courses.

- Implement Blackboard 5.5 to support all Seneca courses, full-time and part-time.

By December, 2001:

- Develop e-learning operational plans for 2002 and 2003, leading to an average of 10% of full-time studies being provided by online learning by 2003 and 2004.

No specific eLearning Plan was developed for the years 2004 to 2005, however the college’s Academic Plan 2004 to 2009 supports the “development of delivery modes that allow students to broaden their learning styles and to use preferred learning styles” (p. 12). It further
states that the college will “develop e-learning strategies that enhance the classroom experience and address new learning styles” (p. 8).

Noting that the learners at the college span a wide range of ages, the 2006 to 2009 eLearning Plan (Seneca, 2006) makes references to the “net generation” of learners and states that “they view technology in learning, if indeed they notice its presence at all, as a tool with which to immediately and continuously connect with others and for convenience and control of their learning activities” emphasising that support for these learning characteristics benefits all learners. Cognizant that “technology enhanced learning activities expand, enrich and reinforce classroom learning” the overall objective of the plan is “to provide a broad range of learning opportunities and modes of interaction that support diverse learning styles, abilities and needs through the integration of technology in teaching and learning” (p.6).

The plan lists six major elements:

- Engagement
- Communication and sharing
- Quality
- Access
- Acquire eLearning Technology and Information Skills
- Innovation

There is no specific mention of the college’s CMS in this plan, but a number of the strategies, identified in the plan, can be facilitated by the use of the CMS course sites. These include:
• Engagement – Student engagement in learning has proven to increase student retention and success and has the potential to draw students into deeper learning experiences.

• Communications and Sharing – electronic communication would be used to enhance and broaden the ways that students can interact with faculty, support systems and other students.

• Quality – eLearning would be used to broaden the ways in which students could become engaged with subject material and learning activities.

• Access – eLearning supports flexibility for students wherever possible, either in timetabling, delivery mode or in access to basic or enriched learning activities. In each class students would have online access to class administrative information (e.g., term marks, announcements, due dates, assigned work where possible, faculty contact information, subject outlines, topic outlines or weekly schedule).

• Acquire eLearning, Technology and Information Skills – all students would have the opportunity to experience a variety of approaches to eLearning, electronic communication and online information practices in their diploma or degree program aligned with industry expectations and needs of graduates.

• Innovation – The College academic Plan 2004-9 states that Seneca will “respond quickly to the changing markets and needs of our community” and “be flexible and innovative in the teaching of courses by introducing new, effective approaches” (p. 8).
Summary

The document analysis revealed that the Department of Information Technology and Telecommunications (referred to as either IT or ITT in college documents) at the college, was the driving force behind the college’s decision to both adopt a single college wide CMS and to purchase the CMS that was adopted. The academic areas of the college felt that they had been excluded during the process and expressed their dissatisfaction with the process. Even though the college is now seen as a leader in the adoption and diffusion of a CMS, and the academics generally agreed that both of those decisions were the right ones there is still much skepticism about the way that the decision was made. This, has without a doubt, been, and continues to be, a barrier to diffusion.

The CMS was purchased with Strategic Initiative Funding within the ITT department. All of the initial initiatives surrounding the purchase of the CMS were spearheaded by the IT department. The major concern within ITT was that it could no longer effectively support all of the “CMS type” tools that were being used by faculty. ITT was also looking for an automated solution for administration and registration processes and for creation of “online” course sites. They also needed a system to integrate and or replace the heritage systems that had evolved over the years and were in use in some areas of the college.

The document analysis revealed that even thought there was an RFP process; there was only one CMS, on the market at the time that met the criteria set out in the RFP. So, in fact, there was not much choice. The key features outlined in the RFP were based on the CMS’s ability to integrate with the college’s administrative and student information systems. The primary teaching and learning “tool” that the RFP addressed was a gradebook. The Advisory committee, that was formed after the CMS was purchased, was initially comprised of representatives of ITT
and Registration; there were no academics on the committee. This was because the primary mandate of the committee was the integration of the CMS with the registration system at the college. At the time that the CMS was purchased there was a Center for Teaching and Learning with new Technologies (CNTTL), but this Center reported to a Manager of Computer Services. This center was primarily involved with the development of content to use in the online environment. The workshops that focused on training faculty to use the system were offered through the Center for Professional Development.

When the CMS was purchased there was no college wide initiative that focused on facilitating the use of the CMS by faculty. The college developed its first e-learning plan after the CMS was purchased. CNTTL was disbanded in 2004. There are now three professors, e-learning advisers based on each of the three major campuses and these professors report to the respective Deans. Their primary role is content creation for the online environment. Workshops and professional development for faculty to use the CMS, is the responsibility of a faculty member, working within the ITT department.

The way in which the decision was made to purchase the CMS, Blackboard, created a great amount of concern for academics and strife between ITT and the academic administrators at the college. The problems with the stability of the system and the issues resulting from the early upgrades to the system added to the concerns and misunderstandings between the two areas. Even though stability is no longer an issue and the infrastructure supporting the system is advanced and well developed, the way the original decisions were made remains a barrier to the whole hearted implementation of the CMS.
Survey Data

The purpose of the survey questionnaires was to examine the perceptions, opinions, attitudes and beliefs of the students enrolled in, the three year business diploma programs. The data were utilized to describe opinions and trends and not to explain causes and effects. There was a preliminary analysis of the data by the Office of Institutional Research and then a statistics expert was hired to do the complete analysis. The data from the surveys were analysed using the software package called Statistical Package for the Social Sciences commonly known as SPSS (Version 15.0). The full SPSS Analysis resulted in a significant number of printed pages and it was therefore not practical to include all of it as Appendixes. All SPSS data generated have been saved both electronically and in hard copy for reference and future use. As noted in the methodology chapter, based on the recommendation of the statistics expert, if less than 10% of the questions on a submitted survey questionnaire were responded to then the questionnaires were excluded from the analysis. Nine submitted survey questionnaires were excluded from the analysis of the Survey One data, none was excluded from Survey Two.

The data are reported in either percents or frequencies and the percents are reported to one decimal point. Based on the sample sizes, Survey One, n= 150 out of a possible 1241 participants (12%) and Survey Two n = 357 out of a possible 927 participants (38.5%), one decimal point presents an accurate representation of the findings. For the statistical analysis of the data, each question was numerically coded. For example, for the level of agreement choices, the following coding was used: Strongly Agree (1), Agree (2), Disagree (3), Strongly Disagree (4), Was not used (5). In some of instances a small number of the respondents did not indicate a response to a question, resulting in a “missing value”. These missing values were not reported in the Tables and Figures, but were reported in data processed through SPSS.
In order to determine if there was a statistically significant difference between the means of the two independent groups of male and female, \( t \)-tests were computed. Analysis of variance (ANOVA) was utilized to see if there was significance among the means of the various age groups. The significance or alpha level was predetermined at .05, which is widely used in education research (Gay & Airasian, 2000). The "Was Not Used" data were excluded for these tests. The tests for significance are solely for those respondents who have used the technology in some way. The Mean, Mode, Median and Standard Deviation for each question were analysed. They are only reported for those questions where they are statistically significant.

In the final section of both the survey questionnaires the students were asked to provide written comments about the ways in which they thought that the use of online (Survey One) and CMS (Survey Two) course sites would help them learn and the ways in which the online course sites would make it more difficult to learn. Those data were exported from the survey questionnaires by the research office and aggregated. There were no identifiers that could relate the comments to the individual respondents. The comments were coded and categorized manually, based on the themes that emerged and those identified during the literature review. Some of the comments were placed in more than one category depending on the content of the comment. The comments were then coded a second time by a research assistant, a student who also worked at the Student Help Desk that supports the CMS. The two data sets were quite consistent with each other; any discrepancies were discussed and then decided on by mutual agreement by me, the researcher, and the research assistant.

**Survey One**

The aim of the first survey was to paint a picture of the students in the first semester of the three year business diploma students at one large, urban, Ontario college. Its purpose was to
answer questions such as: Who are these students? What are their patterns of usage of technology and the Internet? What, if any, technology tools were used in their previous education? What do they think about how technology can help them learn?

The survey was sent to 1,241 students (i.e., all the students who were enrolled in the first semester of the three year business diploma programs). One hundred and fifty nine students responded to the survey, but nine of these students answered only the questions in Section one, which represented less than 10% of the questions, these responses were eliminated from the data presented. In the letter of information it was stated that the students could refuse to answer any question that they did not wish to answer and that they could withdraw from the study at any point during the questionnaire. The research office indicated that it was common practice for respondents to begin surveys and not complete them. One hundred and fifty students, for a response rate of 12%, completed the survey questionnaire. As described in the Methodology section, at the same time that the students received the invitation to participate in this study they were also invited to participate in the Ontario Student Engagement Survey, which offered attractive incentives.

Where applicable, the research findings include the results from statistical analysis of descriptive analysis, independent study t test and ANOVA. For the ANOVA statistical analysis the age groups used were 18 and under, 19, 20, 21-24, 25-30 and 31 and over. The Mean and Standard Deviation were analysed for all questions on Survey One and there were no significant standard deviations found for any of the questions on Survey One.
Demographic Information

Demographic information was collected at the end of the survey, but it is reported first. Of the 148 students who responded to this question, 63.5% (n=94) were female and 36.5% (n=54) were male. As shown in Table 5 which compares the gender by age group of all first semester students in the school of business with all first semester students at the college, the gender of the students in the faculty of business was typical of that of all first semester students at the college. The demographic data used for the comparisons were collected by the Office of Institutional Research and Planning during the college placement tests for 2007. Figure 1 depicts the gender comparison among all college students, all school of business students and the participants of Survey One.

Table 5.

Gender Comparison of All First Semester School of Business Programs Students, All First College Students, and Those Responding to Survey One by Age Group

<table>
<thead>
<tr>
<th>Age Group</th>
<th>All First Semester School of Business Students</th>
<th>All First Semester College Students</th>
<th>Survey One Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F (%) M (%)</td>
<td>F (%) M (%)</td>
<td>F (%) M (%)</td>
</tr>
<tr>
<td>17 &amp; under</td>
<td>53.0 47.0</td>
<td>54.2 45.8</td>
<td>69.2 30.8</td>
</tr>
<tr>
<td>18</td>
<td>52.6 47.7</td>
<td>52.7 47.3</td>
<td>62.2 37.8</td>
</tr>
<tr>
<td>19</td>
<td>46.6 53.4</td>
<td>42.9 57.1</td>
<td>53.8 46.2</td>
</tr>
<tr>
<td>20</td>
<td>49.8 50.2</td>
<td>48.2 51.8</td>
<td>70.0 30.0</td>
</tr>
<tr>
<td>21 – 24</td>
<td>46.8 53.2</td>
<td>48.2 51.8</td>
<td>53.8 46.2</td>
</tr>
<tr>
<td>Age Group</td>
<td>All First Semester School of Business Students n=3146</td>
<td>All First Semester College Students n=6049</td>
<td>Survey One Respondents n=148</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------------------------------------------</td>
<td>---------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>25 – 30</td>
<td>F (%) 61.4 M (%) 38.6</td>
<td>F (%) 52.6 M (%) 47.4</td>
<td>F (%) 90.0 M (%) 10.0</td>
</tr>
<tr>
<td>31 – 35</td>
<td>F (%) 70.7 M (%) 29.3</td>
<td>F (%) 61.8 M (%) 38.2</td>
<td>F (%) 63.6 M (%) 36.4</td>
</tr>
<tr>
<td>36 – 40</td>
<td>F (%) 69.4 M (%) 30.6</td>
<td>F (%) 59.2 M (%) 40.8</td>
<td>F (%) 100.0 M (%) 0.0</td>
</tr>
<tr>
<td>Over 41</td>
<td>F (%) 62.5 M (%) 37.5</td>
<td>F (%) 49.8 M (%) 50.2</td>
<td>F (%) 63.5 M (%) 36.5</td>
</tr>
<tr>
<td>Total</td>
<td>F (%) 51.2 M (%) 48.8</td>
<td>F (%) 49.8 M (%) 50.2</td>
<td>F (%) 63.5 M (%) 36.5</td>
</tr>
</tbody>
</table>

Figure 1. Gender Comparison of all first semester business students (n=3146), all first semester College students (n=6049) and Survey One respondents (n=148).

There was very little variance based on gender for any of the questions or statements in Survey One. As will be discussed later in the chapter, $t$ Tests for significance showed that the responses to just three statements showed a significant difference based on gender.
The students who responded to the survey ranged in age from 17 to over 41, 8.8% (n=13) of the students were 17 and under; 24.7% (n=37) were 18; 17.3% (n=26) were 19; 13.3% (n=20) were 20; 17.3% (n=26) were 21–24; 6.7% (n=10) were 25–30; 7.3% (n=11) were 31–35; 0.7%, one respondent was 36–30 and 2.6% (n=4) were over (Figure 2).

*Figure 2. Age distribution of Survey One respondents. (n = 148)*

The age demographic of the students who responded to the survey is compared in Table 6 with the age of all the students enrolled in the first semester at the college and those in the school of business programs.
Table 6.

*Age Comparison of All First Semester School of Business Programs Students, All First College Students, and Survey One Respondents*

<table>
<thead>
<tr>
<th></th>
<th>All First Semester School of Business Students</th>
<th>All First Semester College Students</th>
<th>Survey One Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>17 &amp; under</td>
<td>252</td>
<td>8%</td>
<td>577</td>
</tr>
<tr>
<td>18</td>
<td>749</td>
<td>23.8%</td>
<td>1681</td>
</tr>
<tr>
<td>19</td>
<td>693</td>
<td>22.0%</td>
<td>1384</td>
</tr>
<tr>
<td>20</td>
<td>438</td>
<td>13.9%</td>
<td>767</td>
</tr>
<tr>
<td>21 – 24</td>
<td>634</td>
<td>20.2%</td>
<td>1230</td>
</tr>
<tr>
<td>25 – 30</td>
<td>207</td>
<td>6.6%</td>
<td>418</td>
</tr>
<tr>
<td>31 – 35</td>
<td>76</td>
<td>2.4%</td>
<td>146</td>
</tr>
<tr>
<td>36 – 40</td>
<td>49</td>
<td>1.6%</td>
<td>103</td>
</tr>
<tr>
<td>Over 41</td>
<td>48</td>
<td>1.5%</td>
<td>103</td>
</tr>
<tr>
<td>Total</td>
<td>3146</td>
<td>100%</td>
<td>6409</td>
</tr>
</tbody>
</table>

No attempt is made to generalize, however, for interest. Figure 3 depicts a comparison of the age distribution among the students who responded to the survey, all first semester school of Business students and all first semester students at the college.
ANOVA for age showed that there were two questions: "I am confident of my ability to use the Internet to help me learn" and “If I had access to my grades for my assignments and tests I would study harder so that I can improve my grades” that showed a significant variance. These will be discussed later in the chapter.

**Characteristics of Students’ Computer and Internet Use**

There were seven questions on the survey related to the students’ regular access to a computer, the availability of a high speed Internet connection at home, the extent of their computer and Internet use, how they rated their computer skills and their confidence in their ability to use the Internet for learning. Almost all of the 150 respondents, 97.4%, reported that they had regular access to a computer and 87.7% of them had a high speed Internet connection at home (Table 7)
Table 7.

Student Access to a Computer and a High Speed Internet Connection at Home (n=150)

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you have regular access to a computer?</td>
<td>97.4</td>
<td>2.6</td>
</tr>
<tr>
<td>Do you have a high speed Internet connection at home?</td>
<td>87.4</td>
<td>11.9</td>
</tr>
</tbody>
</table>

Computer and Internet usage was high, and very similar, among these students with 75.3% reporting that they used the computer, and 74.7% the Internet, several times a day; 22.7% used the computer, and 24.0% used the Internet, every day or two; only two students (1.4%) reported using the computer, and one the Internet once a week and one (0.7%) the computer and the Internet a few times a month (Table 8).

Table 8.

Student Use of Computers and the Internet (n=150)

<table>
<thead>
<tr>
<th></th>
<th>Several times a day</th>
<th>Every day or two</th>
<th>Once a week</th>
<th>A few times a month</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often do you use a computer?</td>
<td>75.3</td>
<td>22.7</td>
<td>1.3</td>
<td>0.7</td>
</tr>
<tr>
<td>How often do you use the Internet?</td>
<td>74.7</td>
<td>24.0</td>
<td>0.7</td>
<td>0.7</td>
</tr>
</tbody>
</table>

When asked, “How would you rate your current computer skills?” 80% of the students said that they were either very good or good, 19.7 % said they were fair. Only one (0.7%) student reported that his or her skills were poor (Figure 4).
Figure 4. How would you rate your current computer skills? (n=150)

The vast majority of the 150 respondents were confident of their ability to use the Internet to help them learn. Ninety-six percent of the students who responded either strongly agreed or agreed with the statement “I am confident of my ability to use the Internet to help me learn”; Six students (4%) disagreed and no one strongly disagreed, Figure 5 depicts these findings.

Figure 5. “I am confident of my ability to use the Internet to help me learn.” (n=150)
Even though most of the respondents are confident of their ability to use the Internet to help them learn, the breakdown of data and t test showed significant statistical difference in the way males and females agreed with this statement. Almost 70% of the female respondents agreed with the statement and 30% strongly agreed; this is in contrast to the males who responded with an almost 50/50 split between those who strongly agreed and those who agreed with the statement (Table 9). There was no significant different in the male and female responses between agreement and disagreement with the statement, the variance is only between those who agreed and strongly agreed.

Table 9.

| Age Cross Tabulation: “I am confident of my ability to use the Internet to help me learn” |
|----------------------------------|-------|-------|-------|
|                                  | Strongly agree % | Agree % | Disagree % |
| Female (n=94)                    | 29.8   | 69.3   | 5.3     |
| Male (n=54)                      | 48.1   | 50.0   | 1.9     |

The ANOVA for this question showed a significant difference among age groups in the level of agreement with the statement. The six students who disagreed with this statement were all 18 and under, and less than a quarter of them strongly agreed with the statement.

On the questionnaire it was stated that at the College, some courses would have information posted on the course sites and the students were asked if they planned on accessing these sites from home; 98% of the respondents said they were planning to do so (Figure 6).
Students Previous Experience with the Use of Technology in Courses

The second section of the survey questionnaire examined the students' past experiences with technology in their courses. There were two parts to this section. In the first part the students were given a list of technology tools and asked to select all of the tools that they had used during their previous education. Twenty percent of the students reported using a CMS such as Desire2Learn, Blackboard, Moodle or WebCT; 31.3% a course website and 32.0%, email to communicate with professors. Almost half of the students (45.3%) reported having access to online library resources; 27.3% access to online tests and quizzes, and 26% online access to grades, blogs, 18%; webcasts, 7.3% and podcasts, 1.3%. A third of the students, 31.3%, reported that they had not used any of the technologies in the list, in their courses, while they were in high school. Table 10 presents the data in descending order of use.
Table 10.

*Students Use of Selected Technology in Pervious Education Experience*

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Used in High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online library resources</td>
<td>68</td>
<td>45.3%</td>
</tr>
<tr>
<td>Email to communicate with professor</td>
<td>48</td>
<td>32.0%</td>
</tr>
<tr>
<td>Course Website</td>
<td>47</td>
<td>31.3%</td>
</tr>
<tr>
<td>Online access to tests or quizzes</td>
<td>41</td>
<td>27.3%</td>
</tr>
<tr>
<td>Online access to grades</td>
<td>39</td>
<td>26.0%</td>
</tr>
<tr>
<td>CMS (WebCT, Moodle, Blackboard, Desire2 Learn)</td>
<td>30</td>
<td>20.0%</td>
</tr>
<tr>
<td>Blogs or online journals</td>
<td>27</td>
<td>18%</td>
</tr>
<tr>
<td>Webcasts</td>
<td>11</td>
<td>7.3%</td>
</tr>
<tr>
<td>Podcasts</td>
<td>2</td>
<td>1.3%</td>
</tr>
<tr>
<td>None of the tools listed above</td>
<td>47</td>
<td>31.3%</td>
</tr>
</tbody>
</table>

The students were also asked to indicate whether or not the technologies that had been used in their courses had helped them to learn. As depicted in Table 11 they reported that the technologies that they had experienced during high school had helped them to learn. Over 80% of the students reported that the use of a CMS, course website, online tests and quizzes, library resources and email to communicate with their professors helped them to learn. Over 90% perceived that online access to grades helped learning. Ten students had experienced the use of podcasts and two the use of webcasts and all of these students perceived that those tools had
helped learning. When blogs or online journals were used 69.2% of the students reported that it helped them to learn. The use of the tools and their impact on learning is illustrated in Figure 7.

Table 11.

Use of Technology and Learning

<table>
<thead>
<tr>
<th>Use of Technology</th>
<th>n</th>
<th>Use of the technology helped learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Webcasts</td>
<td>10</td>
<td>100%</td>
</tr>
<tr>
<td>Podcasts</td>
<td>2</td>
<td>100%</td>
</tr>
<tr>
<td>Online access to grades</td>
<td>37</td>
<td>91.9%</td>
</tr>
<tr>
<td>CMS (WebCT, Moodle, Blackboard, Desire2 Learn)</td>
<td>28</td>
<td>89.3%</td>
</tr>
<tr>
<td>Access to online tests or quizzes</td>
<td>39</td>
<td>87.2%</td>
</tr>
<tr>
<td>Online library resources</td>
<td>66</td>
<td>86.4%</td>
</tr>
<tr>
<td>Course Website</td>
<td>45</td>
<td>84.3%</td>
</tr>
<tr>
<td>Email to communicate with professor</td>
<td>46</td>
<td>82.6%</td>
</tr>
<tr>
<td>Blogs or online journals</td>
<td>26</td>
<td>69.2%</td>
</tr>
</tbody>
</table>
The respondents were asked to indicate their level of agreement with 15 statements about the use of computers and the Internet in learning. Two of the questions were about the students' use of computers for their courses, 10 questions explored the use of the Internet and the online environment and three questions examined the students' perceptions of the use of email and online discussions (Table 12).

*Figure 7. Technology tools used and perceived impact on learning.*

**The Effect of Computers and the Internet on Learning**

The respondents were asked to indicate their level of agreement with 15 statements about the use of computers and the Internet in learning. Two of the questions were about the students' use of computers for their courses, 10 questions explored the use of the Internet and the online environment and three questions examined the students' perceptions of the use of email and online discussions (Table 12).
Computers and Learning

As illustrated in Table 12 the survey findings indicated that while 96% of the students strongly agreed or agreed with the statement “Computers make my job as a student a lot easier (Figure 8) 44.7%, said that they use computers for their courses only when they have to, not because they want to (Figure 9).

Figure 8. “Computers make my job as a student a lot easier.” (n=150)

Figure 9. “I use computers for my courses only when I have to not because I want to.” (n=150)
Table 12.  
Levels of Agreement With Statements About Computers and Learning

<table>
<thead>
<tr>
<th>Statement</th>
<th>n</th>
<th>% Strongly agree</th>
<th>% Agree</th>
<th>% Disagree</th>
<th>% Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computers make my job as a student a lot easier.</td>
<td>150</td>
<td>56.7</td>
<td>39.3</td>
<td>4.0</td>
<td>0.0</td>
</tr>
<tr>
<td>I use computers for my courses only when I have to not because I want to.</td>
<td>150</td>
<td>11.3</td>
<td>33.3</td>
<td>40.0</td>
<td>15.3</td>
</tr>
</tbody>
</table>

The Internet and Learning

The survey findings revealed that the students perceived that the online environment could have a very positive effect on learning (Table 13). Almost all of the respondents, 97.4%, agreed or strongly agreed with the statement “It would be convenient for me to be able to access course notes and resources online”; 90.7% strongly agreed or agreed that if important information about the courses are available online it would help them to learn, and 85.8% agreed or strongly agreed that the use of the online environment in their courses would improve their learning. While 84.7% believed that having course content and other information available online would make it easier for them to study, 80.4% stated that if they had access to grades for assignments available online they would study harder so that they can improve their grades and 84% strongly agree or agree that using the Internet to find resources is necessary to do well in a course, 52.6% disagreed or strongly disagreed with the statement “I would not be able to learn if I did not have access to the Internet” (Figure 10).
Even though 80% of the respondents would prefer that all the information for their courses were on a course web site, they also wanted to have the information printed. Seventy percent of them strongly agreed or agreed with the statement “I would rather have printed handouts than material available online” (Table 13). When asked about the impact of having access to course note online on class attendance, 84.5% of the respondents disagreed or strongly disagreed with the statement “If course notes were available online I would not go to class” (Figure 10.).

*Figure 10.* “I would not be able to learn if I did not have access to the Internet.” (n=150)

*Figure 11.* “If course notes were available online I would not go to class.” (n=150)
t-Tests for gender showed a statistically significant difference in the level of agreement between females and males regarding the statement “I would prefer if all of the information for my courses were available on a course web site” (Table 16). Twenty percent of the female students who responded to this question disagreed with the statement and almost 5% of them strongly disagreed with it; while only 5% of the male respondents disagreed and 2% strongly disagreed.

There was also significant variance among the age groups in their level of agreement with the statement “If I had online access to my grades for my assignments and tests I would study harder so that I can improve my grades”. There is quite a range in the level of agreement with this statement, based on age, as is depicted in Table 14. None of the students in the 21 - 24 age range disagreed with this statement while, 40% of the 20 year old respondents and 31.3% of those 31 and over disagreed with it. Only 6.3% of the respondents 31 or over strongly agreed that online access to grades would cause them to study harder to improve their grades while over 50% of those 21 -24 strongly agreed that it would make them study harder.

Table 13.

Access to Course Related Information on the Internet and Learning

<table>
<thead>
<tr>
<th>Statement</th>
<th>n</th>
<th>% Strongly agree</th>
<th>% Agree</th>
<th>% Disagree</th>
<th>% Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>It would be very convenient for me to be able to access course notes and</td>
<td>150</td>
<td>50.7</td>
<td>46.6</td>
<td>2.0</td>
<td>0.7</td>
</tr>
<tr>
<td>resources online</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would prefer if all the information for my course was on a course web</td>
<td>150</td>
<td>31.3</td>
<td>50.0</td>
<td>14.7</td>
<td>4.0</td>
</tr>
<tr>
<td>site.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statement</td>
<td>n</td>
<td>% Strongly agree</td>
<td>% Agree</td>
<td>% Disagree</td>
<td>% Strongly disagree</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----</td>
<td>------------------</td>
<td>---------</td>
<td>------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>I believe that having course content and other course information available online would make it easier for me to study.</td>
<td>150</td>
<td>26.7</td>
<td>58.0</td>
<td>14.7</td>
<td>0.7</td>
</tr>
<tr>
<td>If I had access to my grades for my assignments and tests I would study harder so that I can improve my grades</td>
<td>148</td>
<td>28.4</td>
<td>52.0</td>
<td>18.2</td>
<td>1.4</td>
</tr>
<tr>
<td>Using the Internet to find resources is necessary for me to do well in a course.</td>
<td>150</td>
<td>32.0</td>
<td>52.0</td>
<td>13.3</td>
<td>2.7</td>
</tr>
<tr>
<td>If important information about my courses are available online it would help me to learn</td>
<td>150</td>
<td>38.7</td>
<td>52.0</td>
<td>8.0</td>
<td>1.3</td>
</tr>
<tr>
<td>The use of the online environment in my courses would improve my learning</td>
<td>147</td>
<td>21.2</td>
<td>64.6</td>
<td>13.6</td>
<td>0.7</td>
</tr>
<tr>
<td>I would rather have printed handouts for my courses than material available online</td>
<td>150</td>
<td>27.3</td>
<td>42.7</td>
<td>27.3</td>
<td>2.7</td>
</tr>
<tr>
<td>I would not be able to learn if I did not have access to the Internet.</td>
<td>150</td>
<td>10.0</td>
<td>37.3</td>
<td>45.3</td>
<td>7.3</td>
</tr>
<tr>
<td>If course notes were available online I would not go to class</td>
<td>148</td>
<td>2.7</td>
<td>12.8</td>
<td>54.1</td>
<td>30.4</td>
</tr>
</tbody>
</table>
Table 14.

Age Cross Tabulation: “If I had online access to my grades for my assignments and tests I would study harder so that I can improve my grades.” (n=148)

<table>
<thead>
<tr>
<th></th>
<th>18 &amp; under (n=50)</th>
<th>19 (n=26)</th>
<th>20 (n=20)</th>
<th>21-24 (n=26)</th>
<th>25-30 (n=10)</th>
<th>31 and over (n=16)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>24.0</td>
<td>26.9</td>
<td>30.0</td>
<td>53.8</td>
<td>20.0</td>
<td>6.3</td>
</tr>
<tr>
<td>Agree</td>
<td>60.0</td>
<td>46.2</td>
<td>30.0</td>
<td>46.2</td>
<td>70.0</td>
<td>62.5</td>
</tr>
<tr>
<td>Disagree</td>
<td>14.0</td>
<td>23.1</td>
<td>40.0</td>
<td>0.0</td>
<td>10.0</td>
<td>31.3</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>2.0</td>
<td>3.8</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Email and Online Discussions and Learning

As illustrated in Table 15, the respondents preferred face to face interactions with professors and other students. When asked about their preference about classroom or online discussions, 65.4% disagreed or strongly disagreed with the statement “I would prefer to participate in an online discussion rather than a discussion in the classroom” (Figure 12).
Figure 12. “I would prefer to participate in an online discussion rather than a discussion in the classroom.” (n=150)

Table 15.

Email and Online Discussions and Learning

<table>
<thead>
<tr>
<th>Statement</th>
<th>n</th>
<th>% Strongly agree</th>
<th>% Agree</th>
<th>% Disagree</th>
<th>% Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I prefer to communicate with my teachers using email rather than speaking</td>
<td>150</td>
<td>9.3</td>
<td>33.3</td>
<td>44.7</td>
<td>12.7</td>
</tr>
<tr>
<td>with them before or after class.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would prefer to participate in an online discussion rather than a</td>
<td>150</td>
<td>12.7</td>
<td>22.0</td>
<td>48.7</td>
<td>16.7</td>
</tr>
<tr>
<td>discussion in the classroom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would be more likely to participate in group work if I could</td>
<td>150</td>
<td>10.0</td>
<td>30.7</td>
<td>48.7</td>
<td>10.7</td>
</tr>
<tr>
<td>communicate with my group members online and we did not have</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>to meet face to face</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Over half of the 150 respondents, 57.7%, disagreed or strongly disagreed with the statement “I prefer to communicate with my teachers using email rather than speaking with them before or after class” (Figure 13) and almost 60%, 59.4%, with the statement “I would be more likely to participate in group work if I could communicate with my group members online and we did not have to meet face to face” (Table 15). There were no significant differences based on age or gender in the respondents’ level of agreement for the statements regarding the use of email and online discussions and learning.

Figure 13. “I prefer to communicate with my teachers using email rather than speaking with them before or after class.” (n=150)
Table 16.
ANOVA and t Test - Survey One Statements

<table>
<thead>
<tr>
<th>Statement</th>
<th>Age ANOVA Sig.</th>
<th>Gender t Test Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computers make my job as a student a lot easier</td>
<td>.488</td>
<td>.512</td>
</tr>
<tr>
<td>I would not be able to learn if I did not have access to the Internet</td>
<td>.726</td>
<td>.827</td>
</tr>
<tr>
<td>I would prefer if all of the information for my courses were available on a course web site.</td>
<td>.998</td>
<td>.035</td>
</tr>
<tr>
<td>I use computers for my courses only when I have to not because I want to.</td>
<td>.554</td>
<td>.470</td>
</tr>
<tr>
<td>Using the Internet to find resources is necessary for me to do well in a course.</td>
<td>.081</td>
<td>.537</td>
</tr>
<tr>
<td>I prefer to communicate with my teachers using email rather than speaking with them before or after class.</td>
<td>.916</td>
<td>.803</td>
</tr>
<tr>
<td>If important information about my courses is available online it would help me to learn.</td>
<td>.062</td>
<td>.666</td>
</tr>
<tr>
<td>It would be very convenient for me to be able to access course notes and resources online.</td>
<td>.364</td>
<td>.529</td>
</tr>
<tr>
<td>I would prefer to participate in an online discussion rather than a discussion in the classroom.</td>
<td>.810</td>
<td>.789</td>
</tr>
<tr>
<td>I would rather have printed handouts for my courses than material available online.</td>
<td>.906</td>
<td>.253</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>I believe that having course content and other course information available online would make it easier for me to study.</td>
<td>.607</td>
<td>.641</td>
</tr>
<tr>
<td>I would be more likely to participate in group work if I could communicate with my group members online and we did not have to meet face to face.</td>
<td>.861</td>
<td>.921</td>
</tr>
<tr>
<td>If course notes are available online I would not go to classes</td>
<td>.414</td>
<td>.404</td>
</tr>
<tr>
<td>If I had online access to my grades for my assignments and tests I would study harder</td>
<td>.006</td>
<td>.816</td>
</tr>
<tr>
<td>The use of online environment in my courses would improve my learning</td>
<td>.130</td>
<td>0.13</td>
</tr>
</tbody>
</table>

The Perceived Impact of Online Course Sites and Learning

At the end of the survey the students were asked two open ended questions. The first, asked the respondents to provide comments about the ways in which they thought that online course sites would help them to learn, and the second asked them to provide comments about the ways in which the online course sites would make it more difficult to learn. The respondents' comments from both of the surveys were analysed based on the same themes. Using the constant comparative method of data analysis (Merriam, 1998) as described in the methodology section,
Chapter Three, cross analysis of the comments from both of the surveys, and the themes from the literature, led to categories that are used to conceptualize the written comments from the surveys.

The comments about the ways in which online course sites could help learning were grouped into four categories:

- easy access to information
- convenience
- organisation
- communication

The ways in which the students perceived that use of the course sites would hinder learning were also analysed based on four categories:

- reduced contact with the professor
- difficulty accessing and understanding information
- technical issues
- lack of use of the sites

Not all the categories were evident in the comments from each of the surveys. There were a number of general comments which did not fit into any of the categories. Those comments did not specifically address ways in which the use of the sites would affect learning but are noted below to provide some context about the thoughts of the students about the online and face to face environments and learning.
Ways in Which the Online Course Sites Would Help Learning

Fifty-five of the comments focused on the respondents' perceptions of the ways in which the course sites would facilitate learning and 58 on ways in which they could create barriers to learning for a total of 113 comments. A sample of the comments, with minor corrections made for spelling and grammar or sentence structure, are presented to illustrate the themes emerging from the comments.

The students' comments revealed that they think that online course sites would help them learn primarily because they would facilitate easy access to information, in particular, course notes and extra resources; and make learning convenient. A small number of comments indicated that the students felt that using the sites would help them to be organised and to communicate with their professors.

Easy Access to Information

The majority of written comments about ways the sites would help learning, almost 60%, (n=33) indicated that the students felt online course sites would facilitate access to information about the course and make it easy to search for and find information. There were a number of reasons why they commented that this would help learning:

Having PowerPoint presentations seen in class is very helpful for those who are not very good readers; they could slowly go through the information on their own time. Also students who could not see the presentation properly could go over it, again, on their own time, plus students who reach class late can refer to the notes that they've missed instead of asking the teacher or relying on another students'
notes in addition having course websites with summarized chapters, practice tests could improve ones learning, especially for those who learn better with visual aid.

If I could look back at tests and notes it would make studying for the future better.

If we have any online course sites it would be easier to study.

English is a second language for me so it would be easier for me to get ready for class before the lecture.

Some people could be visual learners. Seeing information on a screen could help.

I don't have to take notes in class so that I have enough time to understand what my teachers are talking about.

In particular, a number of the comments made specific reference to the perception that information on the course sites would make it easy for them to find out what took place in class, especially if a class was missed.

When a class is missed you know exactly what material and content of your subject has been missed.

Online course sites would help us learn better because if we were not able to attend class for a certain reason we would be able to access the information missed after at home or elsewhere.

Easy to follow if I missed a class.
Convenience

About a quarter of the comments (n=14) noted that online course sites would make learning convenient and offer the students flexibility, as they could learn at their own pace; accessing the information on the course sites whenever they wanted, and from wherever they were.

Convenience, I can choose where and when to learn.

Because it is more convenient, and more easy to access. And I can get it whenever I want.

Online course sites allow me to find information at almost any time, rather than only during class. With online course sites I can learn at my own pace and better fit learning into my schedule.

Online course sites allow me to find information at almost any time, rather than only during class.

Could be used as an online study guide if the notes were simple with examples

Communication

Only four students commented about the course sites facilitating communication, making it easier to interact with their professors outside of class and by posting course expectations, communicating that information so that it is clear:

It helps me to communicate with my professors when I am out of school, and it also provides me another way to gather information and learning material.
I would say one of the issues that get in the way of doing well in a class is not fully understanding what is expected, similar to not understanding what your boss expects of you. Often when in the classroom, teachers get busy with a question or the material of the day, if teachers were able to post general expectations for the class or comments about a specific assignment, it would be more direct. That being said, I'm not saying that teachers should outline step by step what we have to do, just objectives or goals.

There were a few general comments about the importance of using the course sites because computers and the Internet were a “way of life”:

I believe that accessing a course website on the Internet would help people learn because the use of computers and the Internet has become so essential and needed in many people's lives and while spending time on the computer, a person could multi-task by doing homework and researching a course at the same time while on the computer.

I believe the Internet is the future, therefore it should be mandatory for the information relating to the courses provided at Seneca to be posted on the Internet.

Some comments noted that even though information posted on the course sites would be helpful in learning, the help of the teacher was more important:

I just think that it helps when you miss class because, of some thing out of your control, but, coming to class, the teacher is better able to explain what you see on the course site.
A self described, mature student commented:

I've just returned to school as a mature student. When I was in high school there was no such thing as the Internet and now it seems like it is the new teaching tool. Just learning how to use the computer for school studies is a big enough task for me to take on. I'm use to chalkboards, notebooks and handout assignments. If we had questions, we asked in class. Sorry, that I can't offer any solid info on ways I think online course sites would help. Still adapting to this new way of teaching.

**Ways in Which Online Course Sites Would Make it More Difficult to Learn**

The majority of comments, almost 60% (n=33), about the ways in which the online course sites would make it more difficult to learn revealed a concern that the use of the sites would result in less contact with the professor, including making it more difficult to communicate with the professor. A number of comments mentioned the importance of the face to face classroom in learning. If the information on the course sites was difficult to access and not easy to understand this would also create barriers to learning. The students commented about technical issues and expressed concerns that if the Internet was not working and the course sites could not be accessed then that would be a barrier to learning.

**Reduced Contact With the Professor**

I think that all teachers should put course material online but I still need their help in understanding the material.

The reason you go to school is to learn, just reading things of the computer, you won't learn much from that, a prof would be able to better explain things and transfer it into the real world so that we could better understand the material.
Sometimes we just need to talk with our teacher face to face to solve any study problems together.

If there is something I don’t understand then I would need the teacher to explain, so I can’t just use the notes from the site. If I had an online course I would need access to a teacher so I could ask questions when I have difficulty understanding.

**Difficulty Accessing and Understanding Information**

The students commented that facilitating access to information was one of the major characteristics of the use of the course sites that would help them to learn. At the same time their comments revealed that if the information was not clear and easy to understand, or if the information was only available online, it would be a barrier to learning:

If they don't provide enough information, or if the information is difficult to understand.

They should make it easier to reach and prevent making it hard or more sophisticated.

In my view, it is not easy for international students because [they are] not familiar with online courses and English is our second language.

The reason you go to school is to learn, just reading things off the computer, you won’t learn much from that.

If we had to CONSTANTLY look at the information online.
Technical Issues

The comments that were grouped in the technical issues category focused on the respondents' apprehension that they would not have access to a computer or the Internet or that they might experience difficulty accessing the information on the sites due to technical issues.

At anytime technology can fail, for example the course website could be down, a computer failure, Internet provider inaccessible, power outages, just to name a few. If course sites are available they should also be a choice of handing in assignments over the Internet or in person.

Sometimes it isn't possible to get on the Internet. If you don't have the Internet at home, it will be much harder for you to study.

People without Internet access or even access to a computer at home would struggle.

It is interesting to note that one student commented:

I guess in some sense it could make us lazier... not wanting to show up to class, not reading up on the chapters needed.

The analysis of the students' comments stressed that they had a preference for face-to-face rather than virtual contact with professors. The importance of social interaction with the professors also revealed in the comments that described a preference for the face-to-face classroom:

The Internet course sites may have advantages, but it can not replace face-to-face class. I think “in-class” work and learning is better than online learning, the
computer is good for printing documents and what not and another source of information and resources.

Online learning is not perfectly well, since I still prefer doing everything face-to-face or learning in classroom.

Aside from the lectures and assignments, one thing that brings value to my education are the semi directed or spontaneous discussions, which are much easier to initiate in a traditional classroom setting, often with classmates on-line the discussions beyond the required ones either are non-existent or have to be severely directed.

I think compared to face-to-face interaction it is not as efficient for communicating with peers and teachers considering each person’s availability, computer skills, and can become very impersonal.

In addition to the specific comments, some of the comments indicated that the students thought that the use of online course sites would be “great” and “easy”. There were a number of very general comments that stated that use of the sites would not result in any barriers to learning. This comment from one of the respondents illustrates the overarching message from the analysis of the comments:

The only way I find it easier is when an important note or handout or class outline is available online AS WELL [emphasis as written] as in class.
Survey Two

At the beginning of the second semester of the 2007 academic year, during the second week of classes in January, a second survey questionnaire was sent to all of the students in the three year business diploma programs. The Faculty of Business has a high percentage of early leavers (47.5%). The early leavers are the students who enroll in the first semester of a program and, who for whatever reason, do not continue on to the second semester. The highest proportion of early leavers were in the age group 21-24 (27.2%) ³

Survey Two was sent to 927 students. Three hundred and fifty seven students, for a response rate of 38%, completed the survey questionnaire. There was no other college survey being administered to the students at the same time as Survey Two. The students had the option of completing the surveys either online or in a paper format; 229 students completed the survey online and 128 on paper. An analysis of the two data sets by the research office did not find any statistically significant differences between the two sets of data so they were combined for the analysis as presented.

The purpose of Survey Two was to gather information about the students’ experience with the CMS course sites, during their first semester. The questions on the survey explored the tools available through the CMS which the professors teaching in the Faculty of Business may have used, the types of information that were posted on the sites, and the students’ experience with the course sites during their first semester at the college. Their patterns of access of the course sites and their perception of the most valuable benefits of the course sites and the ways in which the use of the course sites helped them to learn or made it more difficult to learn were

³ Email communication with the Office of Institutional Research and Planning, March 3, 2008.
examined. There were four sections to the survey. The findings from each section are presented below.

**Demographic Information**

A number of questions served the purpose of collecting demographic information about the students, including their age, gender, the amount of times a day the course sites were accessed, where they were accessed from, and how much time was spent on the sites were. It also asked for students to identify, from a list, the benefits of the CMS that they found the most valuable for learning.

Of the 357 students responding to the question about gender, 43.7% of those students were male and 56.3% were female (Figure 14).

![Gender Distribution](image)

**Figure 14.** Survey Two: Gender of respondents. (n = 350)

Almost 50% of the 348 respondents to the age question on the second survey were 20 and under; 27.2% were 21 to 24, 11.8% were 25-30, 6.4% were 31-35 and 4% were over 35 (Table17 and Figure 15). Figure 16 compares the ages of the Survey One and Survey Two respondents.
Figure 15. Survey Two: Age of respondents. (n = 345)

Figure 16. Survey One (n = 148) and Survey Two (n = 348) age ranges of respondents compared.
Table 17.
*Age Students Responding to Survey Two and Survey One*

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Survey Two Respondents</th>
<th>Survey One Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>17 &amp; under</td>
<td>1</td>
<td>0.3%</td>
</tr>
<tr>
<td>18</td>
<td>56</td>
<td>16.2%</td>
</tr>
<tr>
<td>19</td>
<td>61</td>
<td>17.7%</td>
</tr>
<tr>
<td>20</td>
<td>51</td>
<td>14.8%</td>
</tr>
<tr>
<td>21 – 24</td>
<td>97</td>
<td>28.1%</td>
</tr>
<tr>
<td>25 – 30</td>
<td>42</td>
<td>12.2%</td>
</tr>
<tr>
<td>31 – 35</td>
<td>23</td>
<td>6.7%</td>
</tr>
<tr>
<td>36 – 40</td>
<td>9</td>
<td>2.6%</td>
</tr>
<tr>
<td>Over 41</td>
<td>5</td>
<td>1.4%</td>
</tr>
<tr>
<td>Total</td>
<td>345</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Features of the CMS*

The features in the course sites that the professors were likely to have used were listed on the survey and the students were asked to indicate if those features were used in their courses and if they had helped them to learn. To ensure objectivity, this list was developed in consultation with faculty who were not invited to participate in the study, but who used the CMS course sites in all of the courses that they were teaching. This list included specific features that are offered
through the CMS, and information that is likely to be posted on the course sites based on the objectives of the college’s eLearning plan.

Table 18 depicts the features and tools of the CMS that the students used during the first semester. Over 80% of the students reported that they had used announcements, gradebook, study guides, course outlines, weekly schedules, assignments, lecture notes, professor information, classroom policies, links to Internet resources, online tests for grade, online tests for review, power point slides and review notes. Discussion Boards were used by almost 75% of the students, blogs/journals by approximately 70%, Wikis and group pages and the virtual classroom by about 60% and podcasts by 50%.

The majority of respondents (over 85%) to Survey Two perceived that if the features available within the CMS were used, they helped them to learn, at least to some extent. The majority of respondents (over 75%) indicated that, when used by the professors, announcements, gradebook, course outlines, weekly schedules, assignments, lecture notes, copies of power point and review notes helped them to learn to a great extent or quite a bit. Discussion boards, professor information, classroom policies, library reading lists, course blogs and journals and wikis, podcasts and the virtual classroom were reported to have less of an impact on learning; more than 50% of the students reported that the use of these features had very little or no impact on their learning.
Table 18.
CMS Features Used by Professors and the Extent They Help Students Learn

<table>
<thead>
<tr>
<th>Feature</th>
<th>n</th>
<th>% To a great extent</th>
<th>% Quite a bit</th>
<th>% Very little</th>
<th>% Not at all</th>
<th>% Was not used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Announcements</td>
<td>353</td>
<td>37.1</td>
<td>41.1</td>
<td>17.3</td>
<td>2.5</td>
<td>2.0</td>
</tr>
<tr>
<td>Gradebook</td>
<td>355</td>
<td>45.4</td>
<td>34.9</td>
<td>13.0</td>
<td>2.8</td>
<td>3.9</td>
</tr>
<tr>
<td>Study guides</td>
<td>551</td>
<td>29.3</td>
<td>28.5</td>
<td>23.6</td>
<td>7.7</td>
<td>10.8</td>
</tr>
<tr>
<td>Course outline</td>
<td>355</td>
<td>54.4</td>
<td>32.7</td>
<td>10.7</td>
<td>0.8</td>
<td>1.4</td>
</tr>
<tr>
<td>Weekly schedules</td>
<td>351</td>
<td>49.9</td>
<td>32.5</td>
<td>10.8</td>
<td>2.3</td>
<td>4.6</td>
</tr>
<tr>
<td>Discussion boards</td>
<td>354</td>
<td>9.6</td>
<td>18.6</td>
<td>34.5</td>
<td>14.1</td>
<td>23.2</td>
</tr>
<tr>
<td>Assignments</td>
<td>353</td>
<td>55.5</td>
<td>32.9</td>
<td>9.9</td>
<td>0.6</td>
<td>1.1</td>
</tr>
<tr>
<td>Lecture notes</td>
<td>355</td>
<td>42.8</td>
<td>32.7</td>
<td>12.7</td>
<td>5.1</td>
<td>6.8</td>
</tr>
<tr>
<td>Professor information</td>
<td>355</td>
<td>17.2</td>
<td>30.1</td>
<td>34.1</td>
<td>9.0</td>
<td>9.6</td>
</tr>
<tr>
<td>Classroom policies</td>
<td>349</td>
<td>12.6</td>
<td>29.2</td>
<td>29.8</td>
<td>14.6</td>
<td>13.8</td>
</tr>
<tr>
<td>Links to Internet resources</td>
<td>351</td>
<td>17.7</td>
<td>41.0</td>
<td>26.8</td>
<td>5.7</td>
<td>8.8</td>
</tr>
<tr>
<td>Library reading lists</td>
<td>351</td>
<td>11.4</td>
<td>25.1</td>
<td>28.8</td>
<td>13.7</td>
<td>21.1</td>
</tr>
<tr>
<td>Course blog/journals</td>
<td>349</td>
<td>12.0</td>
<td>19.2</td>
<td>25.8</td>
<td>14.0</td>
<td>28.9</td>
</tr>
<tr>
<td>Wikis</td>
<td>346</td>
<td>4.9</td>
<td>18.2</td>
<td>23.4</td>
<td>15.3</td>
<td>38.2</td>
</tr>
<tr>
<td>Group pages</td>
<td>353</td>
<td>8.8</td>
<td>45.6</td>
<td>26.1</td>
<td>13.0</td>
<td>36.5</td>
</tr>
<tr>
<td>Virtual classroom/chat</td>
<td>347</td>
<td>7.5</td>
<td>13.8</td>
<td>21.6</td>
<td>16.1</td>
<td>40.9</td>
</tr>
<tr>
<td>Graded online tests</td>
<td>352</td>
<td>24.4</td>
<td>29.8</td>
<td>23.3</td>
<td>8.0</td>
<td>14.5</td>
</tr>
<tr>
<td>Online tests for review</td>
<td>351</td>
<td>25.4</td>
<td>27.4</td>
<td>23.4</td>
<td>10.0</td>
<td>14.0</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>----------------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>To a great extent</td>
<td>Quite a bit</td>
<td>Very little</td>
<td>Not at all</td>
<td>Was not used</td>
</tr>
<tr>
<td>Podcasts</td>
<td>342</td>
<td>5.8</td>
<td>14.0</td>
<td>17.8</td>
<td>12.3</td>
<td>50.0</td>
</tr>
<tr>
<td>Copies of PowerPoint</td>
<td>355</td>
<td>51.3</td>
<td>31.3</td>
<td>11.8</td>
<td>2.3</td>
<td>3.4</td>
</tr>
<tr>
<td>Review notes</td>
<td>353</td>
<td>42.2</td>
<td>32.3</td>
<td>15.6</td>
<td>3.4</td>
<td>6.5</td>
</tr>
</tbody>
</table>

There was very little statistically significant difference, based on age or gender, in the ways in which the respondents perceived that the use of the features, listed in Table 18 affected their learning. *-Tests showed a significant difference based on gender for the gradebook and assignments. The variance was in the way that the females and males perceived that the gradebook and assignments helped them to learn. More females indicated that the gradebook and assignments helped them to learn "To a Great Extent" than males did. The ANNOVA for age revealed a significant difference in the responses for group pages and the virtual classroom (Table 19).
Table 19.  
Significant ANOVA and t Tests for CMS Features and Learning

<table>
<thead>
<tr>
<th>Feature</th>
<th>Gender t-Tests Sig. 2 tailed</th>
<th>Age ANOVA Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gradebook</td>
<td>0.002</td>
<td>0.443</td>
</tr>
<tr>
<td>Assignments</td>
<td>0.017</td>
<td>0.372</td>
</tr>
<tr>
<td>Group Pages</td>
<td>0.813</td>
<td>0.030</td>
</tr>
<tr>
<td>Virtual Classroom</td>
<td>0.258</td>
<td>0.015</td>
</tr>
</tbody>
</table>

Just over 50% of the female respondents reported that the use of the gradebook helped them to learn to a great extent, and 9.2% said it had very little affect on their learning; while just under 40% of the males noted that it had helped them learn to a great extent and 17.1% reported that it had had very little effect on their learning. Almost equal numbers of males reported that the use of assignments helped them learn; 44.7% to a great extent and 40.1% quite a bit; while 63.9% of the female respondents reported that it helped them to learn to a great extent and 26.8% that it helped them to learn quite a bit.

Perceptions About the Impact of the Use of the Course Sites on Learning

Twenty-two statements focused on the students’ perception of their experience with the course sites. These questions were identified in the literature and are based on those used by Coates (2006) in his study on student engagement with the CMS. Table 20 details the respondents’ level of agreement with the statements that explored their experience with the college’s CMS, during their first semester at college. With the exception of the discussion features, almost all of the respondents, over 90%, affirmed that they had used all of the features
to which the statements in this section referred. Just over a quarter of the respondents, 26.2%, indicated that they had not used online discussions; over 30% of the students said they had not used online discussions with other students, and just under 25% of them said that they had not had online discussions with their professors. ANOVA for age revealed that the level of agreement with three of the statements showed a significant difference based on age, while t-Tests indicated that there was a significant different in the response to 11 questions, based on gender (Table 21). As depicted in Table 22 more females than males choose strongly agree over agree while agreeing with the statements. This was no difference between agreement and disagreement.

Table 20.

Level of Agreement with Statements Pertaining to the Use of the Course Sites

<table>
<thead>
<tr>
<th>Statement</th>
<th>n</th>
<th>Strongly agree %</th>
<th>Agree %</th>
<th>Disagree %</th>
<th>Strongly disagree %</th>
<th>Was not used %</th>
</tr>
</thead>
<tbody>
<tr>
<td>The CMS is a major part of my college education</td>
<td>353</td>
<td>63.7</td>
<td>34.3</td>
<td>1.7</td>
<td>0.3</td>
<td>0.0</td>
</tr>
<tr>
<td>I prefer taking courses that use the CMS course sites to supplement what is done in the classroom</td>
<td>350</td>
<td>48.0</td>
<td>41.4</td>
<td>7.7</td>
<td>2.0</td>
<td>0.9</td>
</tr>
<tr>
<td>It is convenient to have all of the important course information available on the CMS</td>
<td>352</td>
<td>71.3</td>
<td>26.7</td>
<td>1.7</td>
<td>0.3</td>
<td>0.0</td>
</tr>
<tr>
<td>Having access to online course information makes it easier for me to study</td>
<td>350</td>
<td>55.1</td>
<td>37.4</td>
<td>4.6</td>
<td>0.6</td>
<td>2.3</td>
</tr>
<tr>
<td>Information on the CMS helps me to keep track of assignments</td>
<td>352</td>
<td>63.4</td>
<td>32.7</td>
<td>3.1</td>
<td>0.3</td>
<td>0.6</td>
</tr>
<tr>
<td>Use of the CMS course sites helps me to be more engaged in my courses</td>
<td>352</td>
<td>51.7</td>
<td>42.0</td>
<td>5.7</td>
<td>0.6</td>
<td>0.0</td>
</tr>
<tr>
<td>Library resources available through the CMS course sites helped me to complete my assignments and tests</td>
<td>349</td>
<td>24.1</td>
<td>53.6</td>
<td>12.6</td>
<td>0.6</td>
<td>9.2</td>
</tr>
<tr>
<td>Having access to my grades on the CMS encourages me to work harder to get better grades</td>
<td>349</td>
<td>54.4</td>
<td>39.8</td>
<td>4.3</td>
<td>0.3</td>
<td>1.1</td>
</tr>
<tr>
<td>I use online material to make lectures more meaningful</td>
<td>348</td>
<td>31.3</td>
<td>50.6</td>
<td>12.4</td>
<td>0.3</td>
<td>5.5</td>
</tr>
<tr>
<td>The use of the CMS helps me better communicate with my classmates outside of the class</td>
<td>348</td>
<td>27.0</td>
<td>41.7</td>
<td>19.0</td>
<td>2.9</td>
<td>9.5</td>
</tr>
<tr>
<td>The use of the CMS helps me to clarify what is required to do well</td>
<td>347</td>
<td>36.6</td>
<td>52.2</td>
<td>8.9</td>
<td>0.6</td>
<td>1.7</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>Strongly agree %</td>
<td>Agree %</td>
<td>Disagree %</td>
<td>Strongly disagree %</td>
<td>Was not used %</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------------</td>
<td>----</td>
<td>------------------</td>
<td>---------</td>
<td>------------</td>
<td>---------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>I have helpful online discussions with other students</td>
<td>343</td>
<td>6.7</td>
<td>29.4</td>
<td>27.4</td>
<td>3.5</td>
<td>32.9</td>
</tr>
<tr>
<td>I have helpful discussions with my professor's on the CMS</td>
<td>341</td>
<td>12.3</td>
<td>44.0</td>
<td>17.0</td>
<td>2.9</td>
<td>23.8</td>
</tr>
<tr>
<td>It is easier for me to explain my ideas in online discussions than in the classroom</td>
<td>343</td>
<td>9.0</td>
<td>24.2</td>
<td>31.8</td>
<td>8.7</td>
<td>26.2</td>
</tr>
<tr>
<td>The content of the CMS helps me when I am prepared for tests and assignments</td>
<td>340</td>
<td>31.2</td>
<td>53.2</td>
<td>10.3</td>
<td>0.9</td>
<td>4.4</td>
</tr>
<tr>
<td>Extra resources and links posted on CMS helps me to review concepts taught in class</td>
<td>338</td>
<td>24.9</td>
<td>55.6</td>
<td>11.2</td>
<td>0.9</td>
<td>7.4</td>
</tr>
<tr>
<td>It is difficult to access information posted on the course sites</td>
<td>339</td>
<td>9.7</td>
<td>19.2</td>
<td>53.1</td>
<td>14.5</td>
<td>3.5</td>
</tr>
<tr>
<td>If lectures notes are posted online I am less likely to attend class</td>
<td>341</td>
<td>9.1</td>
<td>15.8</td>
<td>50.1</td>
<td>21.7</td>
<td>3.2</td>
</tr>
<tr>
<td>It is easy to catch up on missed classes when there is information on the CMS course sites</td>
<td>342</td>
<td>40.1</td>
<td>40.7</td>
<td>11.4</td>
<td>2.9</td>
<td>2.9</td>
</tr>
<tr>
<td>n</td>
<td>Strongly agree</td>
<td>Agree</td>
<td>Disagree</td>
<td>Strongly disagree</td>
<td>Was not used</td>
<td></td>
</tr>
<tr>
<td>-----</td>
<td>----------------</td>
<td>-------</td>
<td>----------</td>
<td>-------------------</td>
<td>--------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>342</td>
<td>44.2</td>
<td>48.5</td>
<td>6.1</td>
<td>0.3</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td>340</td>
<td>33.2</td>
<td>54.4</td>
<td>10.9</td>
<td>0.6</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td>341</td>
<td>40.2</td>
<td>53.7</td>
<td>6.2</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
</tr>
</tbody>
</table>

In courses where the CMS course sites are used I find it easier to keep track of what I need to do to be successful.

Professors use the CMS in ways that improve the overall teaching.

In general I'm very satisfied with my experience with the CMS course sites.
### Table 21.

**t Tests for Gender and ANOVA for Age - Survey Two Statements**

<table>
<thead>
<tr>
<th>Statement</th>
<th>ANOVA Sig.</th>
<th>T-Test Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMS is a major part of my college education</td>
<td>.639</td>
<td>.137</td>
</tr>
<tr>
<td>I prefer taking courses that use CMS course sites to supplement what</td>
<td>.506</td>
<td>.428</td>
</tr>
<tr>
<td>is done in the classroom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is convenient to have all of the important course information available</td>
<td>.997</td>
<td>.035</td>
</tr>
<tr>
<td>on the CMS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Having access to online course information makes it easier for me to</td>
<td>.147</td>
<td>.404</td>
</tr>
<tr>
<td>study</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information on the CMS helps me to keep track of assignments</td>
<td>.108</td>
<td>.005</td>
</tr>
<tr>
<td>Use of the CMS course sites helps me to be more engaged in my courses</td>
<td>.560</td>
<td>.020</td>
</tr>
<tr>
<td>Library resources available through the CMS course sites helped me to</td>
<td>.982</td>
<td>.699</td>
</tr>
<tr>
<td>complete my assignments and tests</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Having access to my grades on the CMS encourages me to work</td>
<td>.925</td>
<td>.002</td>
</tr>
<tr>
<td>harder to get better grades</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I use online material to make lectures more meaningful</td>
<td>.254</td>
<td>.272</td>
</tr>
<tr>
<td>The use of the CMS helps me better communicate with my classmates outside</td>
<td>.541</td>
<td>.004</td>
</tr>
<tr>
<td>the class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The use of the CMS helps me to clarify what is required to do well</td>
<td>.222</td>
<td>.000</td>
</tr>
<tr>
<td>Statement</td>
<td>ANOVA Sig.</td>
<td>T-Test Sig. (2-tailed)</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>I have helpful online discussions with other students</td>
<td>.092</td>
<td>.339</td>
</tr>
<tr>
<td>I have helpful discussions with my professors on the CMS</td>
<td>.870</td>
<td>.009</td>
</tr>
<tr>
<td>It is easier for me to explain my ideas in online discussions than in the classroom</td>
<td>.175</td>
<td>.526</td>
</tr>
<tr>
<td>The content of the CMS helps me when I am prepared for tests and assignments</td>
<td>.47</td>
<td>.010</td>
</tr>
<tr>
<td>Extra resources and links posted on the CMS helps me to review concepts taught in class</td>
<td>.455</td>
<td>.061</td>
</tr>
<tr>
<td>It is difficult to access information posted on the course sites</td>
<td>.983</td>
<td>.129</td>
</tr>
<tr>
<td>If lectures notes are posted online I am less likely to attend class</td>
<td>.254</td>
<td>.151</td>
</tr>
<tr>
<td>It is easy to catch up on missed classes when there is information on the CMS course sites</td>
<td>.004</td>
<td>.710</td>
</tr>
<tr>
<td>In courses where the CMS course sites are used I find it easier to keep track of what I need to do to be successful</td>
<td>.000</td>
<td>.017</td>
</tr>
<tr>
<td>Professors use the CMS in ways that improve the overall teaching</td>
<td>.149</td>
<td>.006</td>
</tr>
<tr>
<td>In general I'm very satisfied with my experience with the CMS course sites</td>
<td>.622</td>
<td>.030</td>
</tr>
<tr>
<td>Statement</td>
<td>Male</td>
<td>Strongly agree %</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>------</td>
<td>------------------</td>
</tr>
<tr>
<td>It is convenient to have all of the important course information available on the CMS</td>
<td>M</td>
<td>64.5</td>
</tr>
<tr>
<td>Information on the CMS helps me to keep track of assignments</td>
<td>F</td>
<td>76.0</td>
</tr>
<tr>
<td>Use of the CMS course sites helps me to be more engaged in my courses</td>
<td>M</td>
<td>55.9</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>68.5</td>
</tr>
<tr>
<td>Having access to my grades on the CMS encourages me to work harder to get better grades</td>
<td>M</td>
<td>45.0</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>61.4</td>
</tr>
<tr>
<td>The use of the CMS helps me better communicate with my classmates outside of the class</td>
<td>M</td>
<td>22.1</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>30.6</td>
</tr>
<tr>
<td>The use of the CMS helps me to clarify what is required to do well</td>
<td>M</td>
<td>25.5</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>45.1</td>
</tr>
<tr>
<td>I have helpful discussions with my professors on the CMS</td>
<td>M</td>
<td>8.2</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>15.5</td>
</tr>
</tbody>
</table>
The content of the CMS helps me when I am prepared for tests and assignments

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree %</th>
<th>Agree %</th>
<th>Disagree %</th>
<th>Strongly disagree %</th>
<th>Did not use %</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>24.0</td>
<td>58.9</td>
<td>11.0</td>
<td>2.1</td>
<td>4.1</td>
</tr>
<tr>
<td>F</td>
<td>36.8</td>
<td>48.7</td>
<td>9.8</td>
<td>0.0</td>
<td>4.7</td>
</tr>
</tbody>
</table>

In courses where the CMS are used it is easier for me to keep track of what I need to do to be successful.

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree %</th>
<th>Agree %</th>
<th>Disagree %</th>
<th>Strongly disagree %</th>
<th>Did not use %</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>38.4</td>
<td>50.7</td>
<td>8.9</td>
<td>0.7</td>
<td>1.4</td>
</tr>
<tr>
<td>F</td>
<td>48.5</td>
<td>46.5</td>
<td>4.1</td>
<td>0.0</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Professors use the CMS in ways that improve the overall teaching

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree %</th>
<th>Agree %</th>
<th>Disagree %</th>
<th>Strongly disagree %</th>
<th>Did not use %</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>26.0</td>
<td>59.6</td>
<td>13.0</td>
<td>1.4</td>
<td>0.0</td>
</tr>
<tr>
<td>F</td>
<td>38.7</td>
<td>50.5</td>
<td>9.3</td>
<td>0.0</td>
<td>1.5</td>
</tr>
</tbody>
</table>

In general I'm very satisfied with my experience with the CMS course sites

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree %</th>
<th>Agree %</th>
<th>Disagree %</th>
<th>Strongly disagree %</th>
<th>Did not use %</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>35.8</td>
<td>58.9</td>
<td>7.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>45.1</td>
<td>49.7</td>
<td>5.1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Graphs are used to illustrate the findings of the student's perception of the impact on learning, of the use of the course sites during their first semester, as they paint a very vivid picture of the respondents' views of the impact of the course sites on statements regarding the impact of the use of the sites on learning. The "Did Not Use" responses are excluded from the data presented in the graphs. The graphs depict the level of the agreement with the statements for the students who had used the features referred to in the statements.

Almost all of the students responding to this survey, responded to this question, 98% of them, perceived that the CMS was a major part of their college education; 63.7% of them strongly agreed with the statement and 34.3% agreed with it (Figure 17).
There was a strong preference among these students for taking courses that used the CMS course sites; 91.1% of the respondents strongly agreed and agreed with the statement "I prefer taking courses that use My.Seneca course sites to supplement what is done in the classroom" (Figure 18).

Almost all of the respondents, 98.5%, said that it was convenient to have all of the important course information available on the CMS. Over 70% of the respondents strongly
agreed with this statement; the largest percent of “strongly agree” responses for any of the statements on the survey (Table 20). The t Tests for gender showed that over 75% of the female respondents and almost 65% of the males strongly agreed with the statement.

Figure 19. “It is convenient to have all of the important course information available on the CMS.” (n= 350)

The perception of almost all of these respondents, 94.7%, is that having access to course information on the CMS makes it easier for them to study (Figure 20).

Figure 20. “Having access to online course information makes it easier for me to study.” (n=342)
Ninety-six point five percent of the respondents either strongly agreed (63.7%) or agreed (32.8%) with the statement “Information on the CMS helps me to keep track of Assignments” (Figure 21).

Figure 21. “Information on the CMS helps me to keep track of assignments.” (n=350)

Just over 50% of the respondents strongly agreed that the use of the CMS helps them to be more engaged in their courses, 42% agreed, 5.7% disagreed and two students, 0.6% strongly disagreed (Figure 22).

Figure 22. “The use of the CMS helps me to be more engaged in my courses.” (n=352)
More respondents agreed, 60.0%, than strongly agreed, 26.4%, that library resources available through the CMS helped them to complete tests and assignments (Figure 23). As noted in Table 20, 9% of the students selected the “Was Not Used” category for this statement.

![Chart]

Figure 23. “Library resources available through the CMS course sites helped me to complete my tests and assignments.” (n=317)

It is the perception of 95.3% of these respondents, that online access to grades encouraged them to do work harder to get better grades (Figure 24).

![Chart]

Figure 24. “Having access to my grades on the CMS encouraged me to work harder to get better grades.” (n=345)
As illustrated in Figure 25, 86.6% of the respondents said that they used online materials to make lectures more meaningful. Less than 1% of the students strongly disagreed with that declaration.

![Bar chart showing level of agreement](image)

*Figure 25.* "I use online materials to make lectures more meaningful." (n=329)

Just over three quarters of the respondents, 75.8%, were in agreement with the statement “The use of the CMS helps me to better communicate with my classmates outside of the class” (Figure 26). Almost 10%, of those responding to this question, said that they did not use the CMS to communicate with their classmates outside of class (Table 20).

![Bar chart showing level of agreement](image)

*Figure 26.* "The use of the CMS helps me to better communicate with my classmates outside of class." (n=315)
Over 90% of the respondents believed that the use of the CMS helped them to clarify what was required to do well (Figure 27).

**Figure 27.** "The use of the CMS helps me to clarify what is required to do well." (n=341)

Thirty-one point seven percent of the respondents, selected the "Was Not Used" category for this statement. Just over half of the remaining respondents, 54% either agreed or strongly agreed that they had helpful online discussions with other students (Figure 28).

**Figure 28.** "I have helpful online discussions with other students." (n=230)
Seventy-four percent of the respondents agreed or strongly agreed that they had helpful online discussions with their professors, 22.3% disagreed and 3.7% strongly disagreed with that view (Figure 29).

Figure 29. “I have helpful online discussions with my professors.” (n=260)

Over half of the respondents, 54.8%, disagreed or strongly disagreed with the statement “It is easier for me to explain my ideas in online discussions than in the classroom” (Figure 30). Almost a quarter of the respondents, 22.7% said they did not use online discussions to explain their ideas.

Figure 30. “It is easier for me to explain my ideas in online discussions than in the classroom.” (n = 253)
Almost 90% of the respondents strongly agreed (32.6%) or agreed (55.7%) that content on the CMS helped them when they are preparing for tests and assignments (Figure 31).

Figure 31. “The content on the CMS helps me when I am preparing for tests and assignments.” (n= 325)

Extra resources and links posted on the CMS helped these respondents to review concepts taught in class; 86.9% of them strongly agreed or agreed with the statement as illustrated in Figure 32.

Figure 32. “Extra resources and links posted on the CMS help me to review concepts taught in class.” (n = 313)
Almost seventy percent of the students disagreed or strongly disagreed with the statement “It is difficult to access information that is posted on the course sites” (Figure 33).

Figure 33. “It is difficult to access the information posted on the course sites.” (n=327)

The respondents did not agree that if lecture notes are posted online they would be less likely to attend class. As depicted in Figure 34, 74.2% of them disagreed with the statement that asked them about the affect of online lecture notes on class attendance.

Figure 34. “If lecture notes are posted online I am less likely to attend class.” (n=330)
Almost equal numbers of students strongly agreed, 41.2%, and agreed, 44.0%, that “It is easy to catch up on classes when there is information on the CMS course sites” (Figure 35).

Figure 35. “It is easy to catch up on missed classes when there is information on the CMS course sites.” (n=332)

Only one student strongly disagreed with the statement “In courses where the CMS course sites are used I find it easier to keep track of what I need to do to be successful”; in contrast, 93.4% of the respondents either strongly agreed or agreed with the statement (Figure 36).

Figure 36. “In courses where the CMS course sites are used I find it easier to keep track of what I need to do to be successful.” (n=339)
Eighty-seven point six percent of the respondents agreed that the professors used the CMS in ways that improved their overall teaching (Figure 37).

Figure 37. “Professors use the CMS in ways that improve the overall teaching.” (n=337)

The majority of respondents, 93.8%, were very satisfied with their experience with the course sites; While 6.2% of them were not satisfied, as illustrated in Figure 38. None of them strongly disagreed with the statement.

Figure 38. “In general I am very satisfied with my experience with the course site.” (n=341)
The students were asked where they were most likely to access the CMS. They reported that they accessed the CMS mostly from home (67.9%). Twenty-five point seven percent said that they used a computer lab at the college and 4.2% a laptop at the college. Two percent of the respondents selected the choice of "other"; one stated that he or she accessed it from the residence and six said whatever was most convenient, either from home or the college.

When asked how often they accessed the My.Seneca course sites, 72.7% said that they accessed the course sites at least once per day, 19.5%, 5-6 times a week, 7.0 % two to four times a week and 0.8% once a week (Figure 39).

![Figure 39. Access to the CMS course sites.](image)

Almost half of the students, 47.2% (n=162) reported that when they logged in to the course sites they spent 15 to 30 minutes looking at the information on a site and 30% said that they spent less than 15 minutes (Figure 40).
In order to explore the perceptions of the respondents of the affect on the CMS course sites on learning, they were asked to select, from a list, the benefits of using the course sites; they could select more than one factor from the list. More than half of the students said that one of the benefits of using the course sites was that it improved their learning. 70% of the respondents indicated that the use of the sites were very beneficial because they were convenient and they facilitated the access to the course information. Only one student (0.3%) indicated that there were no benefits to using the sites. Table 23 lists the benefits in descending order and Figure 41 shows the factors as they were listed on the survey.
### Table 23.

**Benefits to Learning of the Use of the CMS**

<table>
<thead>
<tr>
<th>Benefit to learning</th>
<th>n</th>
<th>Selected %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to the course information</td>
<td>273</td>
<td>78.9</td>
</tr>
<tr>
<td>Convenience</td>
<td>265</td>
<td>76.6</td>
</tr>
<tr>
<td>Improved my learning</td>
<td>191</td>
<td>55.2</td>
</tr>
<tr>
<td>Helped me manage my time</td>
<td>149</td>
<td>43.1</td>
</tr>
<tr>
<td>Helped me to communicate with my classmates and professors</td>
<td>126</td>
<td>36.4</td>
</tr>
<tr>
<td>No benefits</td>
<td>1</td>
<td>0.3</td>
</tr>
</tbody>
</table>

**Figure 41. Benefits to Learning of the Use of the CMS.**

A = Improved my learning  
B = Convenience  
C = Helped me manage my time  
D = Access to the course information  
E = Helped me to communicate with my classmates and professors  
F = No benefits
In the final section of Survey Two the students were invited to comment on their perception of the use of the course sites and its impact on learning. There were 90 comments about the ways in which the use of the CMS course sites helped them to learn or made it more difficult to learn. The comments were analysed and categorised according to the themes identified in Survey One. No new themes emerged, but, the focus of the comments was different from that in Survey One. Samples of the comments are presented verbatim, with minor corrections made for spelling and grammar or sentence structure.

Ways in Which the CMS Help Learning

Most of the comments about the ways in which the course sites were perceived by the respondents to help learning indicated that the major benefit to the use of the sites was that it helped the students to be organised and stay on track. When the course sites were used it was easier for them to “know what was going on in each class”. As in survey One the students also commented that the course sites were convenient and facilitated access to information.

Organisation

Over half of the comments that referred to ways in which the course sites helped learning asserted that when the course sites were used, they enabled the respondents to stay organised by helping them to keep track of assignments and course requirements and manage their time:

My Seneca has made it a lot easier for me to keep on top of my assignments and review what was discussed in class. I sometimes find it difficult to focus completely while being in class, so when I get home I can review what was taught and be able to keep on top of my work.
It allows the student, if utilized properly or to its full potential, to stay organized and well prepared.

My.Seneca helps to remind me when things are due. So it is a very useful tool for my study.

It helps me to learn easier as I am able to access my classes and know what is going on in each class.

It is very helpful that My.Seneca puts things in different places, announcements, tests, outlines, grades.

**Ease of Access to Information**

The easy access to information, course notes, grades and assignments, that the course sites afforded was cited by respondents as being helpful in learning:

It is easy to get material from each class.

It is very helpful when the assignments are posted and when lectures and marks are posted.

If any classes are missed the information provided assists the students to catch up.

An excellent source for students.

**Convenience**

The convenience of having information on the course sites was also seen as an aid to learning:
It is very convenient for students to communicate with their teachers and also having access to the course sites. In addition, if any classes are missed the information provided assists the students to catch up. An excellent source for students.

My. Seneca made my learning easier and convenient, and I expect that professors would continue to use it.

I find that using My.Seneca is easy and convenient.

It's helpful because everything is in one convenient place.

Communication

Only a few comments mentioned the use of the course sites facilitating communication:

I think all courses should use this method of communication.

It is another way to connect with my course and with the college and my teachers.

A number of comments noted that the respondents liked everything about the course sites. The students affirmed that it was "important and a great help".

Ways in Which the Use of the CMS Creates Barriers to Learning

The majority of respondents' comments were about the course sites not being used by the professors. Almost half of the comments in this section and over 75% of the comments that addressed ways in which the sites would create barriers to learning referred to the professors either not using the sites or not using them to their full potential. The comments revealed that the students felt that if the sites were not used, then it was more difficult for them to learn. There was
a strong message from the respondents' comments that the students felt that more professors should use the CMS to post grades as well as resources for, and information about, the courses. There were a few technical issues noted as possible barriers to learning.

*Lack of Use of the Course Sites*

I think that all professors should post all information about each course, including lecture notes, powerpoint presentations, assignments and test info and grades on gradebook! by communicating via My.Seneca I think students will achieve better marks on assignments and tests by having all this information available all the time.

I think it a great tool that more teachers need to use for their class. it helps me a lot when I have a site I can go onto to look over things that have been taught in class.

I think that most of the teachers have used the site at one point or another and the most experienced ones make excuses for not using it. perhaps there could be some persuasion towards the teachers to actually make more use of this convenient service.

It is very helpful when the assignments are posted and when lectures and marks are posted. Unfortunately not many teachers use it and therefore it is hard to know how you are doing in a course.

Not every professor put the information about grades and tasks on the Black Board...Why?
Would be more beneficial if more prof's use the tool, as many courses do not utilize the My.Seneca tool to its full capacity.

A number of respondents wrote that it should be made mandatory for professors to use the course sites:

Make it mandatory that professors use My.Seneca.

It should be mandatory for all teachers to use My.Seneca, all teachers should have good knowledge base in computer use (many profs display difficulty).

Please make it mandatory for teachers.

**Technical Issues**

There was very little reference in the comments to any technical issues. Less than 10% of the comments were about technical difficulties with accessing the CMS:

The My.Seneca site lags very much and often has trouble loading the first time and requires refreshing frequently.

I wish it was easier to access to My.Seneca course site at home or anywhere else, other than this, overall, it's ok.

My.Seneca should never be down, but sometimes it takes too long to load.

While one respondent wrote that:

It is the easiest program for those of us less computer knowledgeable

Two others commented that:
I don't understand many things in My.Seneca. Please make more easier looking, and easy to find information.

Provide for student same handouts to find out how to adjust the modules. Content system is the best part of My.Seneca for students but mostly they don't know a little not user friendly.

There were no references in the comments in this section of Survey Two about the use of the sites resulting in less interaction with the professors.

At the beginning of their first semester at the college, the respondents' comments revealed that they felt that the way in which use of course sites would facilitate access to information would be the greatest benefit to learning. They also thought that the use of the sites would be very convenient. They expressed concern that use of the sites might result in reduced contact with the professor and noted that they hoped that the use of the sites would not be seen as a substitute for face to face interaction with the professors.

After using the sites for one semester the way in which the use of the sites enabled the respondents to be more organised, was the most often noted benefit to their learning. The respondents wrote that this made it easier for them to stay on track, manage their time, and be prepared for class. It was therefore not surprising that when the professors did not use the sites it was perceived as creating a barrier to learning.

Participation in Interviews

The final question asked the students to indicate, by selecting yes or no, if they were willing to volunteer to participate in a focus group interview to better understand the responses to
the survey about the ways in which My.Seneca affects learning. About 10% of the students selected yes.

**Interviews with Students**

Seventeen students were interviewed, four males and thirteen females. Table 24 shows the composition of the interviewees: the age and gender of the students, the programs in which they are registered and the number of CMS course sites that the students had access to. As noted earlier in the chapter, a course site is created for every course offered at the college, but it is up to the professor to make those sites available to the students. With the exception of one student who was doing seven courses and one doing three, all of the students interviewed were enrolled in either five or six courses in each semester. After interviewing seventeen students, it was decided to end the interview process because no new information was forthcoming from the interviewees.

The students were broadly representative of the students in the three year programs with participation of students from each of the five Schools in the Faculty of Business, where three year diploma programs are offered: the schools of Accounting and Finance, Business Management, Human Resources, International Business and Fashion and Merchandising. There were six students from Accounting and Finance, five from International Business and two from Business Administration, Human Resources and Fashion Arts and Design. All of the students had experienced the use of the CMS course sites and had enrolled in at least three courses, over the two semesters, in which the CMS course sites were used.

The students who were interviewed were from a wide range of backgrounds. There were four male students: one who had enrolled in college right after high school, one who attended high school in Toronto, but had worked for a number of years before returning to college, a
recent immigrant from China who had a Bachelor’s degree, and an International student from Mexico who had a MBA from his birth country. Six of the female students were recent high school graduates (five had attended high school in Canada). Three had enrolled in college right out of high school, two of them had taken a year off to work before attending college, and one of them was a recent immigrant, who had spent the year taking courses to upgrade her high school diploma from the country where she had attended high school. Three of them had only recently immigrated to Canada, and had been here, a year or less; these students had difficulty expressing their thoughts in English, but took the time to carefully respond. Three of them had been in Canada for a while and had a university degree from their home country. Two of the female students, had graduated with a Canadian high school diploma and had worked for a while. They had enrolled in college because they had recently been laid off from their jobs.

The interviews used a semi-structured approach and asked the questions outlined in the Interview Guide (Appendix C). The order and phrasing of the questions varied somewhat depending on the ways in which the students answered them. Sometimes the students’ responses diverged into explanations about other instances in the classroom or their views of the ways in which the professors teach. Sometimes there was a need to probe or to repeat the questions. For every interview it was ensured that the main points of all of the questions on the interview guide were raised and great care was taken not to be over-directive. At the same time I made a continual effort to be alert to the comments of the students which related to their experiences with the use of the course sites, and which needed to be probed more fully.

Notes were taken during the interviews and the interview audio recordings were listened to several times, and quotes from the interviews were partially transcribed. The interviews served several purposes; first they enabled a better understanding of the ways in which the students
responded to the questions on Survey Two and it enabled a better understanding of their perceptions about the purposes for using the CMS course sites and how the ways in which the sites are used affected their learning. The responses to the questions were similar across age groups and gender. The students answered the questions enthusiastically and seemed quite passionate about their opinions.

Table 24.
Composition of the Interview Sample

<table>
<thead>
<tr>
<th>Student</th>
<th>Age</th>
<th>Gender</th>
<th>Program</th>
<th>Semester One courses where CMS sites were used</th>
<th>Semester Two courses where CMS sites were used</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>25-30</td>
<td>M</td>
<td>Accounting and Finance</td>
<td>1</td>
<td>2</td>
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<tr>
<td>S2</td>
<td>21-24</td>
<td>F</td>
<td>Accounting and Finance</td>
<td>5</td>
<td>4</td>
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<tr>
<td>S3</td>
<td>21-24</td>
<td>M</td>
<td>International Business</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>S4</td>
<td>25-30</td>
<td>F</td>
<td>International Business</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>S5</td>
<td>25-30</td>
<td>F</td>
<td>Accounting and Finance</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>S6</td>
<td>21-24</td>
<td>F</td>
<td>Accounting and Finance</td>
<td>4</td>
<td>4</td>
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<tr>
<td>S7</td>
<td>18</td>
<td>F</td>
<td>Business Administration</td>
<td>4</td>
<td>6</td>
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<td>F</td>
<td>International Business</td>
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<td>5</td>
<td>2</td>
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<td>21-24</td>
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<tr>
<td>S13</td>
<td>19</td>
<td>M</td>
<td>Business Administration</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Student</td>
<td>Age</td>
<td>Gender</td>
<td>Program</td>
<td>Semester One courses where CMS sites were used</td>
<td>Semester Two courses where CMS sites were used</td>
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<td>S14</td>
<td>20</td>
<td>F</td>
<td>Fashion Arts and Design</td>
<td>1</td>
<td>2</td>
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<td>S15</td>
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<td>Fashion Arts and Design</td>
<td>2</td>
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<td>S16</td>
<td>31-35</td>
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<td>5</td>
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<td>S17</td>
<td>20</td>
<td>F</td>
<td>Business Administration</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

**Question 1**

There is a lot that is written and said about the computer and Internet skills of the students currently attending college. You are identified in the literature as a group who are tech savvy and very comfortable using computers and the Internet. Do you think that this is true about yourself? Is it also true of your friends?

The students all agreed that the statement was true about them.

Yes, this generation is more proficient with the computer; we have grown up with the computer (S17).

They [my computer skills] are okay, they are good, they are enough so that I can manage on my own (S14).

While some believed that it was true of their friends, others were not so sure:

They are very good with the computer and the new technology; they have great computer skills (S12).
In my opinion it is not so true, most of the students just have basic computer skills (S9).

Oh yes I was very surprised [his surprise was in reference to all the different ages of his classmates], my classmates are very familiar with the computer, they know exactly what to do (S16).

The younger students (those under 20) in responding to this question noted that their classmates appeared to be older than they were:

I came to Seneca straight from high school; most of my classmates are older than me (S7).

I don’t think that everyone is that high tech, I think of it as true, but I am not sure about my classmates as a lot of my classmates are older than I am. The younger ones for sure [are tech savvy], but I am not sure about the older ones (S9).

This comment summed up the general feeling of the students interviewed:

Computers are such a priority. We depend on computers for almost everything, every project. For almost every assignment, every project, we depend on computes to get research, to get [and do] everything…. I don’t think that everyone is that high tech (S10).

**Question 2**

How many times a day do you check the course sites?
One of the questions that the students were asked in the Survey Two questionnaire was how many times a day they logged into the course sites. Almost 80% of them responded that they did so at least once a day. To follow up on that question the students were asked the question again during the interviews and the responded that they checked the sites several times a day.

It is like a habit. When my computer is on, it is like every hour, I am always so anxious [to see if the professors have added anything to the sites] (S10).

Every time I have a chance 3 or 4 times a day, before I go to class, in the morning I check it, in the afternoon I check it, in the evening I check it again, I check it all the time (S2).

You get up in the morning, you check My.Seneca – everyday I check even though I know that there is nothing there... we see it as part of our responsibility to keep up with it, but the teachers, they just do not use it enough (S15).

After every class I check it, I check after every class. After every class I check it even though I know that they have not put anything there. You just do not know if anything has been added, even though they have not put anything there I check it (S7).

Question 3

How did your professors use the CMS in the courses that you took last semester?

The answers to this question were very similar and at some point in each of the interviews, in reference to the ways the professors used the course sites, every student
complained that the professors did not use the course sites as much as the students thought they should.

They post assignments, marks, announcements, post grades... No one used any of the other tools, course information, course documents, just a few notes (S12).

They just put up your grades (S15).

Most of them use Announcements, post some course documents, assignments... I do not have any professor do anything but post content (S6).

Documents, information, staff information, assignments (S5).

They use Gradebook, they did not use the discussion boards, email; one teacher is using external links (S17).

Basically just course documents (S13).

One teacher had it on [had made the course site available], but he did not put anything on it. First and foremost was an announcement— he had an announcement saying Welcome to the college and there is nothing else, you go to course documents – nothing. For grades he used his own book and he would have to ask your section and then flip through the pages (S7).

One of my business professors were not using it, everything he did was in class. He did not use it at all and it is miserable, especially for the grading. It is so stressful to always have to ask him to check his grade book. Everyone was asking him why he did not use it he said he did not have enough time (S9).
All my teachers [who use it] only use course documents (S13).

**Question 4**

What do you see as the major benefits to the use of My.Seneca in the courses that you have taken so far?

To illustrate the students' perception of the benefits of the use of the CMS course sites, one quote from each of the student’s responses is presented below. These extracts from the interviews exemplify the ways in which the students perceived the uses of the course sites were beneficial:

- Materials posted so if you miss a class you can catch up. It is not like in high school where you have friends in class. [It is] very difficult to make friends as students are many different ages and backgrounds so it is not that easy to get notes from a classmate (S1).

- It is convenient (S2).

- It works as the guide light for class. We can get to know where we are standing in each class in terms of what is being taught, the materials. We can know our marks, the biggest reason I am using the CMS is to download the documents for each class (S3).

- It is very convenient. Yes, we can have access and contact with our courses where ever we have Internet (S4).
For me I think it is like a bridge between the teachers and the students, the students can look at the information later (S6).

When teachers put on what we will be doing in class then I can prepare. I can do it before I come to class. And sometimes if I am late, and he has already discussed the homework, then I can go on My.Seneca and see what it is... then I can see what was done before I got there. The PowerPoint [slides] is what I use most (S7).

I like it so far because of the grading, so I can keep track of my marks, and second [if ] my professor puts external links on it so I have more resources for my studies (S8).

For me it helps me with my time management – it helps me to keep track – I like the timetable the schedules so I know what is going on. I don’t need to go to my book, I like having all my agenda online..... It is great, I love it (S9).

It keeps you on track, they can post notes, upload your grades, have announcements. It makes you feel like you have more understanding of the class. In class you cannot ask that many questions but if there are notes online you can go back to what you wrote [while in class], see what comments you missed, you can compare them to the notes you made, so it keeps you on track (S10).

There are many benefits, we can see our grades, we can send email to the teachers, I like it when they use it (S11).

For me it is to see the assignments easily and to know the course guideline and the course outline such as the details, and to know the email of the professor and to
see the marks, once we finish a quiz we can almost see the marks almost immediately (S12).

I use it everyday, it keeps me on task with what I have to do (S13).

I do my homework at like midnight, I go home, I sleep and then I do my homework, so it is good to have the information online. If it is online you can use it whenever you want and you can print it or not print it (S14).

If you miss a class all the information is there, online (S15)

I think I could divide it in two ways, the first is a way for people to get familiar with technology and that is amazing, and it is fantastic and the other is that it is faster and more reliable to find homework and assignments, you have more flexibility. The most important thing, from my personal opinion, is to use it for the extra information, they can put whatever they want and all the information we require (S16).

What I like most is to be able to go to blackboard and go over the slides or see what you missed. I like being able to check my grades on gradebook and helps you to keep track of your grades. and I like being able to send email to my group members, I am in two groups, one in marketing and one in business and I use it all the time to send email to my group members and to teachers (S17).

Question 5

In the courses that you have taken so far have there been any drawbacks to using the My.Seneca course sites?
Some of the students were quick to respond that there were no drawbacks, nothing that they did not like:

I did not like when there was nothing on it [for a course] I like everything about it (S7).

My.Seneca is great, there is nothing I do not like, no drawbacks (S13)

No, there is no negative impact of the use of My.Seneca there is nothing that is not good (S16).

Only one student answered this question with some frustration evident in her voice as she complained about the way in which the professors posted the information:

Sometimes I cannot find the documents that the professor put [on the sites], sometimes it is an assignment, but they put it in the course documents folder so it is difficult to find (S4).

Another student said:

No actually not, the only stuff is that sometimes some professors are not familiar with the My.Seneca and the way that they put the grades.... and other things it does not make sense, but otherwise it is amazing, it is only when they don’t know how to use it that it is a drawback (S16).

Difficulty accessing the course sites was also seen as a drawback to its use:

I had some problems with the download times in the night, it taking so long – that is the only trouble with My.Seneca, because we want to access it all the time (S8).
Drawbacks, well only if there is a problem with Blackboard…. We like using Blackboard except when it is really really slow, some days the system can be down, Blackboard is really good, but it has a problem, I am not sure if it happens at the other campuses, but at my campus there is a problem (S17).

The students expressed some annoyance at some of the professors who they claimed put information on the course sites and then when asked a question by a student, tells the student to go to the site to find the answer:

A drawback would be if they put something on the course site and then they do not explain it to you (S15).

I don’t like it if I ask a question and they say that the answer is on the course site, they “depend” too much on it. Once they put something up there they want us to look for it there (S7).

Yes, some depend too much on it. There do not want to spend time with us, not even two minutes. They say oh it is on Blackboard go check it there. They say go to Blackboard. They just assume that if something is on BB then you can get the answer from there. Sometimes they say something is posted and it is not there (S9).

**Question 6**

What effect do you think the use of My.Seneca has had on your learning?
The students' responses to this question were very similar to their responses to the questions about the benefits of the use of the course sites. As an example of this, S12 said that the benefit of the course site was that:

For me it is to see the assignments easily and to know the course guideline and the course outline such as the details, and to email the teacher and to see the marks....

and the effect that the use of the course sites had had on her learning was:

It is tools [that help me] to access information that I need, such as assignments or the course information and the course documents and the marks. Without My.Seneca it is not convenient, we cannot see the course information, we cannot upload or download the assignments....

The students indicated that the use of My.Seneca played an integral part in their learning. The spoke about the course sites being convenient, saving time, and helping them to stay on track. They also felt that having access to their marks motivated them to work harder. Only one student spoke about it being a good way to communicate with the professor.

It is convenient, this morning I had an 8 o’ clock class and the teacher said to read a short story and I had not done it. So I went to My.Seneca and found the topic and in the bus I started reading ... it is very convenient – if I did not have it on My.Seneca I would come to class and not know what to do, it is very convenient (S7).
I think it helps me to learn because it keeps me on track. You can go back to notes and check say Chapter 1. It helps me to learn but it is not as though if it was not there I would not be able to learn, it is more of a guide (S10).

Because I think you want to get a good mark this motivates you to keep going. It is a fast way to know it. As soon as it is posted you can check it right away. If the quiz is on Blackboard then right away you know. Good marks motivate me and if I have a lower mark I feel uncomfortable for the whole day (S6).

When the course sites were used the students felt that they were more organised:

It is more of an organisational thing, I am not sure if it really helps you learn, but it keeps you organised.... I use it everyday, even when I am not at school, it keeps me on task, what I have to do, it tells you what is coming up, it gives you a heads up as well, so it really keeps me on task (S13).

One student was quite adamant that she achieved higher marks in the courses where the course sites were used:

The class I am doing really well in is the class where the professor uses Blackboard a lot... he has many things on it and we can follow everything (S17).

**Question 7**

Many professors feel that if they post the course notes on My.Seneca you will not go to class – is that so? And if so or not so why or why not?
The students were all quick to answer this question. Without hesitation they all said that they would still go to class.

That is one of the excuses that my Math teacher uses, but that is not so. I think that is just a poor excuse from the professor. I came to Seneca because I needed a teacher, I think that is just a poor excuse from the professor. I tried to do the CGA online courses and it was just much, it was very difficult too distracting, I had the radio the TV, my facebook, I had everything to distract me. I need a teacher, I came to Seneca so that I could go to class, I had friends interrupting, I need a class (S1).

Yes, I would still go to class, because even though there is information such as power points about each chapter, it is clearer if we go to class and listen to the professor (S12).

Yes, absolutely I would still go to class, the purpose for coming here to college is exactly that [to go to class] otherwise I would just do online classes (S16).

I prefer face to face… If everything was on line I would still go to class, I prefer face to face. My only advice is to have more teachers use it, if more teachers used it it would be helpful (S13).

I need a teacher, I want to have eye contact – if I don’t have eye contact I don’t understand. I have to have a teacher (S2).

We need the energy from the teacher [everyone laughed and agreed] (S3)
Yes. Last semester we have a professor with his own website, I love that teacher. He told us that other professors told him that if he did that no one would go to class. He has everything on it – and his class is always full, everyone is always there, present, because of his teaching style and the way he actually teaches his classes, it is not boring it is fun. We look at it as we have the website as a reference – you can read it and if you don't understand anything you go to class and you can discuss it and more than one student may have the same question. Everything practically is available on Blackboard but I still go to class, maybe some students would not but I still go to class (S17).

I prefer the teacher to talk about everything in class. I like to go to class and listen to the teacher, but it depends on the teacher. I have to go to class, if I want to fail I would not have go to class, but if I want to get an A I have to go to class, I have to... and that is the bad thing about me, I have to go to class (S7).

I like coming to class but some professors speak exactly from the text book. They speak as though they were the text book (S8).

My Seneca should be secondary; it should be like a backup, for if I miss class or if I want to check a grade or an announcement. It should not be the big focus for me, to depend on [it for] everything. The professor should be where we learn from. It should not be that I depend on the CMS for everything the teacher should be the focus (S10).

*Question 8*

Do you think that in general your professors use the CMS effectively?
The students complained about the professors who do not use the course sites and often during the interviews they mentioned that the professors did not use the CMS as much as they would like them to. There was general agreement that it was not used effectively.

Most of my professors do not use My.Seneca effectively, they use it to post grades and that is good – but they just activate and that is it (S9).

All of my teachers are using it, but not too actively, only my accounting teacher uses it effectively, the other ones not really, just like post notes and that is it – the discussion board they never use it effectively, except my accounting teaching (S5).

I think they just don’t know how to use it properly – there are a lot more capabilities than they use – so I don’t think they know how to use it (S11).

A few students said that the teachers used it “well”, but then qualified that statement with how they could use it more effectively.

In general they do very well. This college does it very well, in the past at the school I studied before, they also use Blackboard, my experience was not very pleasant, but here it is very good, but I still think they could use it better, they could put extra material, extra help in order to improve our learning experience (S16).

I do not know what they are supposed to put on it, but at moment what they have is okay for me. But if they put more stuff on it fine, like if they put on the lectures that would be cool (S7).
Most of the teachers are good but so many do not post the mark (S3).

Many students mentioned that the professors needed to organise the information that they posted on the sites, so that the information was easier to find:

In general they are good, but if they were more organised, they should be more organised (S11)

It should be more organised so that we don’t get stressed, we should know where to go (S10).

It is more beneficial when it is being used, that is for sure (S14).

They need to take a class to know how to organise and put [information in the correct] places. One of my professors he puts everything on one section - course material, assignment tests, notes, everything in one... so I have to go through the whole list and I am not sure where it is, it is very time consuming. Instead of click and look on it, I have to spend 5 – 10 minutes to just find it – that is a waste of time (S9).

It depends on the subject, but we definitely do not want them to use it less, we would always want them to use it more, never less because the more they use it, the more we learn (S17).

For me it is okay, but maybe some parts are not used, the professor never use it. They never use the discussion boards, some other information, the professor
information – we never use it. Sometimes I click on a button but I never see any information there I think it is okay, but there are so many things not used (S12).

One student noted:

Some depend too much on it – when I ask a question they say refer to My.Seneca, they depend too much on it, they should have a balance. Once they put something on there they expect us to just look to that for answers or anything (S10).

**Question 9**

If there was one thing that your professors could use My.Seneca for in your course what would it be?

There was somewhat equal emphasis on grades and access to course documents and information in response to this question. They said it really “bothered” them when they did not know their marks. They said that when the teachers give them “paper” if they lose that paper then they are lost, while if the material is posted online it is always there.

Marks - The most important thing is marks (S6).

It is so hard to keep track of how you are doing in the course when they don’t use it when they do not give back assignments or post the grades (S10).

This is a fast way to know it [the grades] and every time you want to know it, it is right there. If it is posted on the Internet you can just check it – good marks motivates me so I like to have access to them… (S5).
Access to information about the course, especially access to assignments and course timelines and schedules, any documents that helped them to organise their time and stay on track, was of primary importance to the students:

The material is the most important thing because I can always get the grades later, but without the material I cannot learn (S1).

I need to pre read lectures or notes before I come to class, so that is what I would like to see (S2).

Professors should post other materials related to the course to make me learn better, maybe more exercises, some sample questions, when you read the textbook what should you think, more information that we need to know, to do better, not just to pass the course, but about our career (S10).

The one thing all professors should use My.Seneca for – most important is assignments, access to assignments (S12).

Only two students mentioned something other than grades or course information:

A question and answer area of the course – a general one. I think a really good thing would be a question and answer discussion board for each course, some people have questions and it could be a random question, they could put it there and not only the professor could answer it but someone from class should answer too, someone could answer, not just the teacher (S10).
Probably they could use the discussion board more and maybe more external links and examples but so far we are satisfied, oh we can also submit documents electronically (S17).

**Question 10**

What advice would you give to your professors about using My.Seneca to help you learn?

It did not matter which program the students were enrolled in, their age or their gender; the students all believed that if the course sites were used then it would help them learn. At some point during each of the interviews, every student mentioned that they felt that not only should more of their professors use the sites, the ones that used it should use more of the tools that were available in the CMS. One student pointed out that everyone she knew really found the use of the sites beneficial.

It is a support tool as far as I concerned, but they make all kinds of excuses [about why they are not using it], but it is really important (S1).

I know some professors don’t like to use My.Seneca but I don’t know why. Last semester two of my professors did not use the Gradebook, I did not know my grade, I did not know what was going on (S2).

There should be timelines, Blackboard should be updated every moment, some teachers get behind, they are on lesson seven, only lesson three on the site— it should be what is going on in the classroom (S3).
First they should organize the materials that they post on Blackboard, use folders, all assignments in the assignments folder, all lectures in a lecture folder, they need to organise the materials, don't put all the material in one folder so that we I cannot find it sometimes (S4).

This student went on to say:

One teacher said “I will never ever use blackboard, [in my class there will be ] no contact through Blackboard nor email – you have a question you have to call me – I dropped the course right away, it is very inconvenient if they do not use Blackboard (S4).

I think it should be more organised, and it should be easy for us to use it, and we should not get stressed out, especially if we cannot find stuff. Make sure that it is easy for us to use. Don’t use it too much or too little (S10).

I suggest that they post the marks, because some professors never use it, maybe why. I don’t know why. I like to see the marks, and the assignments, if they post assignment requests and the course requests it is so much better for us.... Sometimes we work at home, after midnight, so if there is information there we can login and see the information, especially the assignment – it is more convenient (S12).

Just let more teachers use it and then it would be helpful (S13).
Some professors who are not that high tech should take a class so that can improve their skill and they would know how to organise and put things on Blackboard (S8).

It is a faster way to get information... When I was in high school, if we had this it would have been so much better... it would have helped us to keep track (S14)

Yes, for instance [they should put] copies of the assignments, links to things that would be useful, examples maybe (S15).

I think in general it is good, but there needs to be more on My.Seneca (S11).

This comment by one of the students provides a good summary of the advice to the professors about the ways to use the course sites to enable learning:

It would probably be [to post on the sites] like everything we are going to do, you know reminders, this is what we are going to do this week, this is what is due on this day - Some teachers do and some don’t and the ones that do do it, I tend to do better in those courses .... If they do use it, help the students out and remind them.. Lot of people tend to forget about things. Students have work, outside of school, outside of work. This generation has so much to do, they don’t just want to do work or school, and they want leisure time as well. So if they [the professors] do [put information on the course sites to ] remind them [of all the things that they need to do to do well in the course] then that is great (S13).
Use of Discussions on the Course Sites

During the first focus group interview one of the students mentioned that in the past he had taken some online courses and the discussion board had been used extensively in those courses. He did not find the discussion useful because he said it was really a “question and answer forum” rather than a discussion. This comment prompted some discussion among the students about the use of the discussion board on the course sites. There was quite a mix of feelings about the use of discussions but they all agreed that they would only participate in the discussion if it were “for marks”.

Only one of my professors uses it and it is good, he posts one topic and he discusses it. It is for our grade. If it were not part of the grade I would not use it, because we don’t have time (S2).

I prefer to be in class with the professor when there is a discussion so that there can be eye contact and we can get a sense of how the professor feels about what we are saying (S3).

In the second focus group interview session, one of the students mentioned that there was a mandatory discussion in one of the courses. When asked if they liked the online discussions, once again there was a mixed response. Two students, both for whom English is not their first language had this to say about the discussions:

I think the discussion in the classroom is better, most students don’t notice the discussion board, like the discussion board, they don’t even notice it, they don’t see it (Means that they do not look at the discussion boards)... Discussion in the classroom is better (S5).
Most of the students are not Canadian so English is not their first language probably they feel shy in class, you want to but you don’t have the confidence to speak out. “The discussion board can help them to express their opinion, they can just write it they don’t need to stand in front of people...as they can say it and not have to write (S5).

One of the most memorable moments during the interviews, happened at the end of one of the interviews, after the recording device had been turned off. Just as the student was about to leave the room, she turned back and told me that she had finally thought about what she had to say about the course sites and learning. “You know what it is like?” she asked me. Before I could respond she said: “Without My.Seneca it is the same as if you are driving blind” (S14).

The students talked freely during the interviews and they responded to all of the questions. In both the focus groups and the individual interviews they did not show any reservation or hesitation when answering the questions. The survey and interview data revealed that they had widely differing previous experiences with and levels of competence in the use of technology. They were very positive in their views about the impact of the use of the course sites on learning and, without a doubt, felt that its use helped them to learn. Having access to the information available on the course sites helped them to be organised and was very convenient. All of the students, at some point during the interviews talked about how the use of the sites helped them to stay on track and that was the overarching theme of all of the discussions about the benefits of the CMS. The students alluded that it was more than just the convenience of having information online; what was really important was to be able to use that information as a guide and to keep on track with what they needed to do to be successful. Having access to grades motivated them to study harder; access to assignments, course notes and course outlines helped
them to be organised. The students talked about having busy lives, with many distractions and so they felt that the course site was the equivalent of the “day planner” of the students of the past.

The ways in which the use of the CMS could support communication between professors and among students were hardly ever mentioned during the interviews, and there was a strong preference for face-to-face rather than virtual interaction with professors and classmates. There was much emphasis about the very important role of face-to-face contact with the professors. These students, who were interviewed, stressed that the use of the course sites was not a reason to decrease the time spent in the physical classroom. They were emphatic about going to class and stated unequivocally that if professors felt that they would not go to class if notes were posted online then, that was in fact just an excuse from the professor for not taking the time to use the course sites. They also noted that if a professor repeats in class, as was sometimes the case, exactly what is posted online then, there would not be much value from the face-to-face learning experience.

Professors’ under use of the technology detracts from the learning experience as does their ineffective use of the sites. There was very little reference to technical difficulties or lack of the skills to use the sites; however, the students noted that at “busy times” the sites took a long time to load and that was frustrating for them. The most noted complaint was the “lack of organisation” of the material posted on the sites, thus making it difficult to find information. The students were particularly critical of the professors not using the sites for what they considered to be basic functions: posting grades and course documents such as the course outlines, assignments and lecture notes. The students had little to offer professors about the ways to use the sites more effectively other than for posting more information and in particular their grades and assignments. The students alluded that they did not know what the sites could be used for as they
had not had much, if any, exposure to the other tools on the course sites. In both the open ended survey questions and the interviews there was a strong emphasis on their perception that while technology is not a substitute for face-to-face interaction with faculty it is an integral part of teaching and learning.

**Interviews with Faculty**

Nineteen professors teaching the three year diploma students in the School of Business were interviewed. Twenty-one professors volunteered to be interviewed. One was not teaching in any of the three year business diploma programs, and two of them did not attend the interview at the time that was scheduled and did not respond to the request to reschedule. Three of those interviewed had never used, and had no plan to use, the CMS course sites. One professor was using it for the first time and 15 professors had been using their sites for between one and seven years. All of the professors were very enthusiastic about being interviewed. There was a bit of apprehension from the three professors who were not using the CMS. They asked for assurance that they would not be identified because they said there was a "strong push" in the Schools of Business for all of the professors to use the course sites. At the end of each interview, after the recording device was turned off, the professors all continued to speak and were very interested in learning more about the research. There was much discussion about their own struggles with information overload, and about how, often, they found it difficult to sort through and "manage" the information that was available to them. They found that the use of the CMS really helped them with this. The ones who were using the course sites often noted that it was to their own benefits as well as to that of the students to use the tools available within the CMS.

The answers to questions 1 – 4 of the Interview Guide are summarized in Table 25.
**Question 1**

What courses do you teach?

**Question 2**

How long have you been teaching?

**Question 3**

How would you describe your level of experience with using the Internet and computers?

**Question 4**

Do you use your course sites? If so, how long have you been using the CMS?

Table 25.

*Summary of Findings: Faculty Interview Questions 1-4*

<table>
<thead>
<tr>
<th>YEARS TEACHING</th>
<th>COURSES</th>
<th>EXPERIENCE INTERNET/COMPUTERS</th>
<th>YEARS USING THE CMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>F01</td>
<td>22 Introduction to Marketing</td>
<td>“Okay”</td>
<td>No</td>
</tr>
<tr>
<td>F02</td>
<td>15 Introduction to Law, Ethics, Science and Reality (ELS options), Astronomy,</td>
<td>“Above average”</td>
<td>1</td>
</tr>
<tr>
<td>F03</td>
<td>6 Physics</td>
<td>“Advanced”</td>
<td>3</td>
</tr>
<tr>
<td>F04</td>
<td>30 Business Communications</td>
<td>“Good”</td>
<td>No</td>
</tr>
<tr>
<td>F05</td>
<td>9 Introduction to customs,</td>
<td>“Fairly skilled”</td>
<td>4</td>
</tr>
<tr>
<td>Years teaching</td>
<td>Courses</td>
<td>Experience Internet/computers</td>
<td>Years using the CMS</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------------------------------------</td>
<td>-------------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>F06</td>
<td>Statistics and General Management</td>
<td>&quot;Pretty good&quot;</td>
<td>6</td>
</tr>
<tr>
<td>F07</td>
<td>Global economic issues, Ethnicity and immigration.</td>
<td>&quot;Pretty up to par&quot;</td>
<td>2 1/2</td>
</tr>
<tr>
<td>F08</td>
<td>Organisational Behaviour</td>
<td>&quot;Intermediate to advanced&quot;</td>
<td>6</td>
</tr>
<tr>
<td>F09</td>
<td>Math</td>
<td>&quot;Very facile&quot;</td>
<td>No</td>
</tr>
<tr>
<td>F10</td>
<td>Fraud in the Business Environment, Criminology and Ethics</td>
<td>&quot;Reasonably fluent&quot;</td>
<td>First time</td>
</tr>
<tr>
<td>F11</td>
<td>Media Studies, Global economic Issues, Contemporary Global Issues</td>
<td>&quot;Really sound&quot;</td>
<td>7</td>
</tr>
<tr>
<td>F12</td>
<td>Canadian multicultural literature and Film. English</td>
<td>&quot;Fairly elementary&quot;</td>
<td>3-4</td>
</tr>
<tr>
<td>F13</td>
<td>Global economic issues, political science, social science</td>
<td>&quot;Above average&quot;</td>
<td>4</td>
</tr>
<tr>
<td>F14</td>
<td>English for Academic Purposes</td>
<td>&quot;Average&quot;</td>
<td>4</td>
</tr>
<tr>
<td>F15</td>
<td>English for Academic Purposes</td>
<td>&quot;Strong&quot;</td>
<td>5</td>
</tr>
<tr>
<td>Years teaching</td>
<td>Courses</td>
<td>Experience Internet/computers</td>
<td>Years using the CMS</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------------------------------------------------------------------</td>
<td>-------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>F16 10</td>
<td>General psychology, Social Psychology</td>
<td>“Novice Intermediate”</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>System courses in Accounting and Finance, Business process integration.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F17 6</td>
<td>Critical Thinking, Psychology</td>
<td>“Very strong”</td>
<td>6</td>
</tr>
<tr>
<td>F18 7</td>
<td>Financial Accounting and Tax</td>
<td>“I think I do pretty well”</td>
<td>6.5</td>
</tr>
<tr>
<td>F19 10</td>
<td>Financial Accounting and Tax</td>
<td>“Proficient”</td>
<td>3</td>
</tr>
</tbody>
</table>

**Question 5**

What prompted you to use the CMS?

The ways in which use of the course sites enable professors to store, manage, and share information with students were some of the key factors that prompted them to use the sites. The professors talked about the sites being a convenient way to get information to the students “faster”. They indicated that posting documents was easier than having to copy and carry around all the information. They professors’ rationale for using the sites included: communicating with students outside of class, facilitating access to information, giving the students access to grades, accommodating the diverse needs of students and responding to student demand. The examples of colleagues and to follow the processes encouraged by the college were also noted as reasons for using the course sites.
The need to communicate with students outside of class.

I think I thought that when I started using it, I think I thought that it would be a really nice way to communicate information to students and give them course information without printing it. That’s what I really wanted to get away from, I really wanted to get away from printing a lot of documents and information and I wanted them to get to have the information faster and communicate with them more easily, and so I really like the feature on Blackboard where I use the email and the announcements page all the time (F08).

Convenience, you know, and the ability to communicate with students, you know, beyond the classroom (F13).

It’s relatively convenient. It’s not a bad communication tool with a student on a direct basis in terms of course documents and required course information. It sort of, it filled that nicely (F17).

To accommodate the diverse needs of the students.

I realized that some students can’t make it to class, I learned that some students can’t keep up with what I am saying in the classroom, so having what I say reflected on Blackboard just allows me to appeal to different learning styles (F07).

To facilitate access to information.

I really wanted to get away from printing a lot of documents and information and I wanted them to get to have the information faster (F10).
To post grades for student access.
Well first of all to start importing the grades because I was, although I started first with the continuing education department and they didn’t require that, but I wanted to be advanced in this, so that’s why it was my initiative, so I started using it and I found out it’s a very convenient feature when you have everything displayed and students have access to it. So it’s good for me and especially it’s good for students, and they can track where they are. So grade book is very good. And by the end of the term you can just cut and paste to use Excel and you have everything organized, so it’s an excellent feature (F14).

Student demand.
They kept saying “Can you put that on Blackboard, sir?” And I said I don’t know Blackboard. So finally I bit the bullet (F02).

The example of colleagues.
I began to use it 3 years ago or 4 years ago, I forget, when I came back from a year of sabbatical. Blackboard had been installed while I was gone, and when I came back I saw particularly my one office colleague using it, and I just became interested in it. And I went to a couple of workshops, plus that colleague helped me, and so that’s when I started using it all the time (F12).

Encouraged by college initiatives.
Basically, the schools I was with, that was their delivery mechanism for announcing things that were going on in the course, recording grades, and so that initiative prompted me (F14).
Oh I just thought that it was part of being a professional. You know, to be teaching and not use the school’s general infrastructure tools just seemed to me to be not acceptable. I mean, I just can’t imagine not using it (F06).

Some of the professors noted that using the course sites helped them to manage all of their own information as well as the information that they wanted to give the students access too – so it was beneficial to them as well as to the students.

It makes my life easier than it was (F13).

It was there, it looked interesting, it, I can’t remember, no, I remember logging on the first time and it said welcome [name deleted] and I thought oh my god, it knows who I am! And then I clicked on my course, the little thing, and I had all these photos of my students and I thought this is amazing. So at first it wasn’t really for my students’ sake, it was I saw it could do things for me that I found useful, and in fact, I might have the first semester I used it, I might have used it only for my own thing and not made the courses available, if I’m not mistaken. But then I, so as I got more comfortable with it then I opened it up and made my courses available and started putting content in and things like that (F16).

At some point during each of the interviews all of the professors alluded to the role that the use of the sites played in helping them to manage the information for their courses. They noted that there was so much information, easily available, about every subject, that they often had difficulty keeping track of where everything was.
I like it. It's much easier than carrying all my disks around and trying to upload stuff and I can post stuff, post copies and stuff so I don't have to carry things around. And I like posting grades. So those are three things that I started doing regularly (F18).

**Question 6**

How would you define learning?

The professors had to think for a while before answering this question. One said that they did not "expect" this question and other that it was "a hard one". Each one of them hesitated before responding. Learning was defined as:

*Transfer and acquisition of information and knowledge.*

Sure, I think learning is acquiring information through a variety of methods (F15).

I think I would define it as the effective transfer of information and knowledge from one person to the other (F10).

*Transfer and application of knowledge and skills.*

And that's essentially why I teach, so that transfer of knowledge or a skill set. It's not just knowledge it's also how do you do something (F05).

But actually it's acquiring new knowledge so that you could apply this knowledge, you could use some skills you could apply later on in your professional field or else in life (F14).
A process that has many different aspects, acquiring, understanding, analysing and using information.

That's such a hard question because there's so many different aspects to learning. I guess I would say I look at their learning as acquiring and using and analyzing information from many different sources, you know I think that's important that learning is from many different sources, not just the teacher, for example. But really just the acquisition and the use and the interpretation of information, and I think it's new information (F08).

Well, a professor provides information, insights and the student receives that information and insights and processes it and either applies it directly or develops critical thinking skills, you know, to assess and analyze other things that come to him or her, you know, not only in their courses but throughout their lives (F11).

Change or growth.

That's a really good question. Wow. I would describe learning as, part of it is acquiring knowledge, part of it is along with that would go acquiring a sense wonder too, of this knowledge, and a sense of relevance to one's own life, and even the word change appeals to me, if real learning involves a certain change and adjustment of the self, I think. So that's how I would see learning. A sense of acquiring knowledge and wonder, and change, I guess. (F12).

Learning is changing. If I'm learning something I'm changing my behaviour or attitude towards something. And also using information to not only make my life
easier but to improve my life and the people around me. So I see learning as a way of improving one's environment (F13).

A process of discovery.
Learning to me, stated briefly, is a process. And it's like the process of discovering for yourself what the meaning of things written in books and things said by your teacher (F03).

Having an explicit dollar value.
Okay, I would use four or five different levels. I think at the highest level, learning should have an explicit dollar value on it. So for example, I take a student, you're the employer you send me the student, and when I send that student back you can put that person in a job and you can see that they're doing it in half the time and at twice the level, and you can put a dollar value on it. And that to me, you know, is tangible, solid learning, and it's contrary to the way almost everyone else values learning (F06).

Question 7
Please describe the tools that you are using in your Blackboard course sites and your purposes for using those tools.

The tools that the professors used are illustrated in Table 25. All of the professors who were interviewed reported that they posted course content and information including: course notes, due dates, course outlines, PowerPoint slides, lecture and course notes. Sixteen of them posted announcements; thirteen of the seventeen professors said that they used the gradebook, Eleven posted the assignments and used email available through the course sites, ten used the
discussion board, six posted external links to additional resources, Two posted their contact
information and videos, used Turnitin to check students' papers for possible plagiarism, and used
the online testing tool and one of them used messages.

The professors listed the tools they were using, but did not always explain their purposes
for using the tools or features. As one of them noted:

The tools that I use, I use announcements, I use emails, I use documents, I use
grade book, I don't think I use any others. Those are the main ones that I use,
announcements, documents, emails and grade book....Because they seem to me
very central and very easy and practical to use, and it seemed that those were the
ones that fit in to the courses that I was teaching, and the students like those tools,
so those are the ones I use (F12).
Table 26.

*Professors Use of Course Sites*

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Examples from their responses are used to illustrate the purposes that were noted during the interviews:

**Course content.**

Mainly content, yeah, mainly content. Mainly a transport mechanism (F17).

I’m also using course documents. Course documents I usually post some, just some kind of material that you cannot cover because of the time limits and some additional material I’m posting in the course documents section. ...They need to be reminded sometimes so [along with] just posting the link [you have to ] remind them before the test [about what ] they do need to do to practice[for the test]. (F14).

And I use course documents, I post all the PowerPoint notes for them, they love just having that accessible..... instead of them having to search through all of these articles I sort of take some of the information and highlight it for them (F08).

**Assignments.**

And I use assignments button, where I post all the assignments, you know, and sort of evaluation forms. I’ve got the evaluation criteria form so that they can have a look at, you know, how I’m going to evaluate them (F08).

**Discussion board.**

The three comments used below express the mixed feelings of the professors about the use of the discussion boards. These comments connect to the comments made by the students
and the results of the surveys. The students noted that they did not see much value of the discussions and that they would not participate in the discussion unless it was graded.

We use discussion boards. ... I like them [the students], at least in the discussion format, to comment on each others discussion postings. Mostly they [the students] give examples instead of discussing, but I think that’s the nature of a first semester course. A lot of them are not particularly computer literate, so it’s their first experience with discussion boards, they’ve never done that before, they don’t really know how to post and when they start they really freak out on me, but by now we’re in week six and they’re getting more comfortable and I’m asking them to do something with the discussion board rather than just post introductions in their classes. There’s more summarizing and discussing and commenting (F18).

Sometimes it is very structured, like I post 8 to 10 questions and part of the grade is formed by contributing to the discussion, but I mean it’s not just them talking, I ask specific questions in order to prepare them for the tests and they have to think about it in the reply. I comment usually on each reply, so that’s another way to get feedback and feeling for how they are understanding [the course content]. Then sometimes I just open discussion and keep it there in case of somebody suddenly thinks of a question they can immediately post it and I will reply whenever I can but that is a good way because sometimes in class either they forget or I forget to answer so we have that backup there (F03).

The discussion board when I used that they weren’t too wild about it. They didn’t like it as well as the face to face interaction and I don’t know why exactly, I’m not
sure why. So I found that when they went on discussion board if I gave them marks they would actually do it for case study answers, but if I said let's just go on and have a discussion then they wouldn't do it (F08).

One professor noted that even though she used the discussion board she was not very good at it and found it cumbersome:

I have used the discussion board but I'm not that good at the discussion board .... I find the discussion board cumbersome (F05).

**Blogs.**

This semester I'm using blogs...I'm using blogs as a way to get students to reflect on the course material because a lot of them don't necessarily do it in class. I use them in my group dynamics course, and in class we tend to spend most of our time doing group work. So we apply broad concepts and we do case studies and we do activities, so the blogs are more of an individual reflection, a time when they reflect and say this is how this works for me or doesn't work for me. [Blogs give the students the opportunity to write about] some of the stuff that they wouldn't necessarily talk about in a classroom situation (F18).

**Online tests and quizzes.**

For instance, in my statistics class, I use the test pools and the testing online. It's a wonderful thing because I can randomize the questions, everybody gets something different (F06).
I have used online testing, I’m not this semester. I had too many problems with cheating, quite honestly, it was pretty horrible, so I kind of dropped that (F18).

**Groups.**

I use groups, within the groups function I predominantly use discussion board, file exchange and send email (F07).

**Announcements and Email.**

I use the announcements and I change that every week, because what I find with the students is, and some people say, you know, you don’t have to spoon feed them, but you know what I kind of disagree in a way. I think that they’ve got busy lives, and I think that they are often working and going to school and got family responsibilities and bombarded with information, so I try to help them navigate the information in the course. So I use the announcements page every week to tell them what we’re going to do in the class[during the] week and to give them sort of a heads up. And I use the email function when I need to email the whole class, and it’s a great function if I’m not going to be in class that day or if I’m going to be late or something I’ll send them an email first thing in the morning using Blackboard and they all check their email all the time, so it’s a great way to communicate with them. So I like that feature a lot (F08).

**Voice tools.**

I used the voice board I taped, I audio taped a summary of each chapter, it was about 10 minutes of my voice summarizing the chapter and putting it up for the students and they loved it and they got, because they could listen to all of these
audio tapes before the midterm or the exam, so they loved that. It took a lot of my time though. I ended up sort of not doing all of the chapters because it was sort of something extra and I just ran out of time. But it was, I mean they loved it. The feedback was they really liked it (F08).

The first tool that I am using is the voice boards, so for my students with an ESL background, it's an excellent opportunity to record themselves, so voice boards allows them to do some introductions, presentations, answer questions, maybe some reading passages on these voice boards (F14).

**Digital dropbox.**

I use digital drop box for assignments, so they can, so we can check for academic honesty (F07).

Digital drop box I used and am still using for editing and writing (F14).

**Calendar.**

We've got the calendar running in the background for the students if they want it. I haven't seen any hits on it quite honestly, but it just seemed quite logical to use what was already there and not reinvent the wheel (F10).

**Gradebook.**

Okay, grade book most definitely, first of all because it's easy to tabulate marks that way. Secondly I find that students can access their marks online and reduce the discussions, disputes that I have about marks. That's the main thing. I really find that helps a lot. They know if they're failing or doing well or if I made a
mistake then I can correct it right away. It allows them to check their marks, and at the end of the term I find just being able to print out grade book saves me a lot of time compared to the first couple of semesters (F13).

So the grade book piece allows me to put things up in front and just in time (F07).

Library content.

I use the reading sections, I have course books and course readings online, I get that done through the library, the links (F13).

Messages.

I started using messages, so I go to communication, messages. This allows us when we work in the lab we just create some outlines like these that focus on writing, we create outlines, and I can go around, I help them, I can see right away, so in this way I help them right away. So messages, again, they work on it, they send me outlines, they send me paragraphs of messages (F14).

The general sentiment of many of the professors who were interviewed was that they were not using many of the tools. This comment sums up the opinion that was expressed by many of the professors:

I'm not using very many of the tools, to be honest with you. I'm using the functions where I can load up my notes, load up the assignments, load up the grades (F19).

Question 8

Which of these do you think that the students find most useful?
The responses to this question ranged from “everything” to “I don’t know.”

*Everything.*

Everything. The two things I use they find really useful. They like to communicate by email with me, I like to attach notes and when I do do the notes and put them on, they love it. Some professors are very reluctant to give the students the notes they lecture from, and I don’t believe in that (F02).

I think they use all of them. I think that the discussion, I think that they use all of the information. I know that they check the announcements and I asked them how often just to check and some of them check Blackboard daily, and some of them check every other day…. So I think they find it all useful. (F08).

…messages, discussion board, Wimba voice, gradebook, gradebook is excellent, course documents. I think I mentioned these features, I think they are really valuable to students (F14).

*The gradebook.*

Students really like the gradebook. As soon as the test goes up, I find that they’re there and they’re assessing [their grades] right away (F07).

They certainly like grade book because, you know I don’t understand it, but they don’t come to class but they want to know how they did on the tests and assignments, and they don’t come pick it up, so they want to see it on grade book (F18).
Announcements.

Announcements are good, I do a weekly update and students like that. It just sort of seems to allow them to come better prepared to class (F07).

Readings online.

Well having the readings online is very useful to them. Some people like hard copy, some people are quite satisfied with the text online.

I don’t know.

No. I have not asked, quite honestly, and I have not had any feedback. (F17).

I haven’t really had a lot of feedback other than that they appreciate having their grades on grade book. That’s the number one thing. Wimba was a great success the first time I used it, I only used it once, last semester and the students told me that they loved it. They were nervous at first, they were embarrassed to record their voice, and of course most of them hadn’t used it before here at the college, so they just said that it’s a good way for them to gain the confidence especially because they did in-class presentations at the end, so it was a good way for them to gain confidence, to listen to each other through Wimba at home and in the privacy and to be able to record and re-record. Obviously I’m summarizing what they said but they thought it was useful. One of the major things that I hear from second language students is that they need more practice speaking, and so I think they appreciated the use of Wimba as a tool (F15).

One professor stated that she believed that what the students found most helpful depended on how “good” the student was academically:
Well it depends on the student. Most students use the grade book, but that’s just sort of okay, how much do I have to study tonight? But your A plus students and your A students, they are in Blackboard every week (F05).

And another said he did not think the students had the ability to determine what was most useful:

What I do find interesting from the students is that they’ve come to expect to see things on Blackboard, and when that’s not there, they let you know. But I don’t, I think they just see it as a tool, I don’t think they’ve got the comparative abilities to say it’s better than, or, you know (F17).

*Question 9*

What is your perception of the impact of the use of Blackboard on student learning? In what ways do you think the use of CMS will help students to learn?

It was the view of all of the professors interviewed, who used the CMS course sites, that the CMS is a tool and therefore whether or not the tool facilitated or created barriers to learning depended on the ways in which it was used by both the professors and the students. Properly used, it, of itself, did not create any barriers to learning. Whether or not it helped the students learn depended on the purposes of its use and the ways in which what occurred in the physical classroom and the uses of the course sites were integrated. The professors spoke at length about the interaction in the physical classroom being the most important aspect of their teaching and the greatest impact on learning. As one professor noted during the interviews:

I’m just trying to figure out what could possibly be any barrier ...but again whenever I teach classroom interaction is first and Blackboard is secondary of
course, but it is a very useful help. So, no negatives, it only enriches, it adds to the course, adds a lot more (F03).

The professors felt that both the classroom and the course sites had their unique elements that, used well together, provided a rich learning experience:

I think the only way you can hinder is if there isn’t the complement of both, the dynamics of a classroom experience, because there’s some real richness in classroom with regards to peers, but so is there with [the CMS]. I found a young woman this morning posting a discussion piece that I never in a million years would have thought that she was so engaged in the course, where she’s an international student, where in the classroom I bet she’s very shy to talk, but on the Blackboard she’s very engaged, so I think you kind of need to have a marriage of the two, the physical and the technological (F07).

I think that nothing can replace the dynamic of the classroom, the interaction, the social interaction, so I wouldn’t want to see Blackboard take over classroom teaching because I think I really enjoy that aspect of teaching and I think that students do too (F12).

The professors spoke of the course sites being convenient for the students, helping them to organise their materials and stay on track, facilitating easy access to information, accommodating diverse learning styles and providing another way for them to communicate.
Convenience.

And again, that is a convenience for the students, and also I think that it’s a must for the professors because if you want students to learn you have to make it convenient and give them reinforcement immediate at their convenience, so they can go on to Blackboard and look at their grade any time they want, rather than wait for their next class and get to the professor and stuff (F02).

Organisation and keeping track.

Well sometimes things happen, they cannot attend every class and instead of them asking me what did we cover, did you give any handouts? I say everything is there, it’s all there, if you still need clarification send me an email. So in this sense it’s like keeping track of the material, organizing the material. So in terms of organizing the material that’s great and it helps me even more than it helps students to organize things and I see what we covered and what is next and it just keeps track for myself and for them (F03).

Access to information.

Well you know, I think it’s, well adding on learning, I post all my PowerPoint lectures for students to read and then in class I have them at least three things they weren’t sure about before I even start my lecture, or I post my lecture notes in Word files, which I do, so that’s another thing. I like the ability to provide hyperlinks to interesting videos or other things related to my courses, you know if we’re talking about hockey violence I can show them the brutal hit that one player gave to another that’s injured him for life, you know here’s a visual example of something that I’m going to discuss now in the discussion forum, it brings people
up to speed. It also, I mean students, you know who can’t attend class for whatever reason, here it is, you know it’s all there for you. It might pose a problem in that they might not take notes, but quite frankly they don’t take notes anyway...unfortunately, I don’t know how they’re learning (F11).

*Communication.*

I think it’s a great tool. My perception is it’s a huge advantage to communication, I think it’s a huge communication advantage and I think that the students, it enhances their learning because they not only come to class and listen, but they can actually spend as much time or as little time on Blackboard as they want, so that’s a huge advantage (F08).

*Accommodating diverse learning styles.*

But I mean in theory it’s a fantastic tool, because you know there’s different types of students, and one-third of the population are introverts, and you know these students would not feel comfortable speaking in a classroom setting but would through this means. For them it might appear less intimate or they’re less visible, so it gives them that sense of expressing themselves more in a controlled fashion. They can go over things and say it exactly the way they want to say it, and so it gives them, a third of our population, a real good opportunity to participate, you know in learning (F11).

One professor said that the use of the CMS helped the students to learn because it put a lot of power [control] in their hands:
Theoretically, I think it puts a lot more power in their hands. I mean, just on a basic level, just knowing their grades, the average of the class, being able to see where they’re standing, what elements of their work have gone into their final grade, that’s a good thing. And I say theoretically because sometimes they don’t really get it, and they don’t really, they don’t always use it that way, they, but I think there’s the potential there for them to be much more in charge of their learning. Having access, I give them all this extra material that’s optional, like on external links I’ll put up a video or something that connects to what we’ve seen, so students who are interested can really start to branch out that way (F16).

And other said that it helped the students to learn because they liked it:

Their learning? My perception is that the students all are plugged into it, almost without exception, and that they like it. I love using it myself and because I love using it myself I just think automatically that they love it, but maybe they don’t, but I think they do. Like I think they depend on it heavily, they go to it regularly, especially grade book. I’m told by the librarian that they see students in the computer lab staring at their grades, you know, and they like to, I always, I feel very strongly that I should always be available to them by email, and even when I’m at home on weekends I’ll check my email four times a day and I’ll reply immediately to questions, and they’ve gotten used to that, and they like it (F12).

Two of them said that the answer to the question really depended on the student:

For your keen students, they just lap it up, they love all this information, so I put, I also put additional material on for those A students those A plus ones that are
really interested, they find it helpful. The other students, well I don’t know. I’m not so certain that if you’re a student who is on the borderline of failing, I’m not so certain that they even go to Blackboard (F05).

Well I think it depends on the student. So some students are able to really catch all of the information in class the first time after it’s been said or explained or after it’s been practiced. Some students need more time, they need it in a different format, they need further discussion, so a discussion board, so I think it enhances learning that way.(F15).

In reference to the use of the course sites one professor noted:

It is a definite enhancement, and I think that [without it] my course definitely would not be as rich (F13).

The technology skills of the students and of the professors were identified as being key factors in the impact of the CMS on learning. At the end of the interviews, the professors often discussed the technology skills of themselves and their colleagues as they saw this as affecting the way the sites were used to facilitate learning. There were many instances during the interviews when reference was made to the technology skills of the students. The professors seemed to be in general agreement that:

Oh yeah, I think we’ve got to make it easy for them to use, to understand, and I think that you know, I thought that they were extremely tech-savvy and they had lots of time to navigate everything and I don’t think they’re quite as sophisticated as I assumed. I think I assumed that they would know how to use all of the
technology tools without any training, and I don't think that's true anymore. I think that they need to be shown, and I think that they look at stuff at a much more superficial level. And when we want to enhance learning we really need to make them critically think, and we need to push the advanced learning with them and we need to show them how to do it. I don’t think they know how to do it even though we think they're so tech savvy I don’t really think that they know how to use the technology to advance learning. They don’t make that connection, we have to make it for them (F08).

**Question 10**

Are there ways in which you think that the use of the CMS creates a barrier to learning?

Some professors felt that if student had no access to computer or did not know how to navigate the CMS, and there was information on the course sites, then that would create barriers to learning. If the use of the course sites resulted in students not attending class or if it “replaced” teaching then learning would be hindered.

*Difficulty accessing a computer or the course sites.*

It could be negative is somebody doesn’t have access to computers because they will miss a lot of things (F03).

Well I think there’s a certain frustration level with Blackboard, not Blackboard itself per se in terms of, you know, a piece of software application, you know I think it’s the reliability and up time, it’s when the students want to access it and they’re not able to causes a certain degree of frustration. They’ve started to rely on this now it’s no longer available, for whatever reason, you know their home
computer network the connection is down, the server is down here. However, you
know saying that I do find the reliability of Blackboard in this server environment
to be quite high (F17).

*Students not attending class as a result of the information on the sites.*

I think that someone who might be very My.Seneca savvy might not advocate
class attendance; you can sometimes get students who say, oh, it’s all on
Blackboard I don’t need to come to class (F07).

On the flip side, I also forgot to mention I post PowerPoint presentations, but
some, it makes some students think that they don’t have to attend class. That’s the
downside of it, and I find that students who don’t attend class tend not to do as
well as those who do. There’s just so much, you know, that you can get from
communication in the classroom, so to me it’s an, how do you say, an add-on
(F13).

But, as this professor noted later in the interview:

I can’t think of any offhand except for the one that I just mentioned. Students just
think they don’t have to attend classes, and probably with the hundreds of
thousands of students that I’ve had I could probably identify on one hand the
number of students who ruled out coming to class (F13).

*Lack of skills.*

Well one of the things that [one of ] the students said to me when I was, just last
semester, was, she said that she wished that she had an orientation of Blackboard
in an orientation, in the first week or something (F08).
I'd have to go back to my observations that a good majority of our student makeup in our courses are not that computer literate, and you know computers still present a fear factor to them, and a good number still ask for paper handouts and things (F17).

If use of the course sites replaces teaching.

If it's misused, so if it replaces teaching I think Blackboard is a barrier to all students. I think the teaching and learning process has to happen, well not has to but typically for me, happens in class, and if a course isn't an online course and the use of Blackboard replaces teaching then I think it hinders the students not helps (F15).

One professor spoke about the importance of having time for the professors to learn how to use the tools available through the CMS; noting that not having the time to learn to use the tools could result in the sites not being used to their full potential and therefore create barriers to learning.

Yeah, if they [the professors] don't understand all the features, ...you know don't understand how it works and haven't taken the time to learn the different features then that is a barrier because then the prof doesn't use the system. And you know I find too, a barrier for me is taking the time, like taking the time to learn the voice board and do the audio taping, and it was a really great idea and I was really gung ho for the first five chapters and then after that I'm like I'm running out of time. So I think it's an investment of time on both parties, right, the professor's time and the student's time. And you have to, I think it's really important to make
it easy, to invest that time or maybe to provide the incentives on both sides so that we’ll spend the time doing it, you know (F08).

**Question 11**

In what ways has the use of Blackboard impacted the way that you teach?

While some of the professors asserted that the use of the CMS had helped them to organise their material, made teaching easier, given them the opportunity to interact and or communicate with students outside of the classroom and even saved some time; a few of them noted that it did not really impact their teaching in any way.

**Organisation.**

The ways in which the course sites helped the professors to organise their material and provide organisational structure to the course was mentioned most frequently by the professors.

It organized me, in a sense. It made me, it helped me personally to organize the material better (F03).

Yeah, I think it’s actually easier for me, I mean I love it as a course management system because I find it helps organize me and the students, it helps provide an organisational structure, that’s I think easy to see, evident, and I think that, so it’s given me that structure (F08).

Good question. I don’t know that it’s impacted the way I teach. I think it’s been a tool to help me stay organized, to provide extra support for students, but in terms of teaching material that still happens in the class (F15).
Made teaching easier.

Oh, it’s made it so much easier. For me, I have instant communication with regard to notes, and I can satisfy my students when I want to easily by putting stuff on Blackboard. So they get a much, they get much more fulfillment out of the course (F02).

Increased interaction and communication with the students.

It’s given me the opportunity to interact with the students far more over the period of a week, because effectively instead of teaching three hours a week I’m teaching 14 to 15 hours every week because I answer every posting on Blackboard, I keep trying to direct them into what I’m looking for. So I think that’s how it’s impacted me, I think there’s much more involvement even though it’s arm’s length as opposed to non-arms length being in front of them in the classroom (F10).

It’s had a big impact I’d say. For one thing, I like it, and it really calms me to know that I can communicate with my students outside of class, by email, by announcements, posting of documents, whatever. I like that as a feature, very much (F12).

One professor noted that the way it had impacted his teaching was that it had given him access to a variety of tools:

Oh absolutely. I mean, you know I’ve moved from being, you know when I first started teaching a lecturer who would just stand in front of a podium and provide a lecture and write a few things on the blackboard and use overheads, to now someone who has a multiple of tools, it’s kind of like an analogy would be a
golfer with a variety of clubs that you would use for a variety of situations.
Blackboard enhances learning by providing students with, you know lecture
notes, PowerPoint lecture material, you know, give them some, you know,
visuals, to accompany their learning, the interactivity allows them to express
themselves but also to apply the knowledge that they’ve just been given in some
concrete form, and also to enhance in-class relationships among other students
(F11).

He was the only person who made any reference to the use of the CMS enhancing in-class
relationships among other students.

No impact.
It hasn’t affected the way I teach in the classroom because it doesn’t really have
an impact in the classroom. I still have to go through the courses each with an
individual feel, a different form, so in the classroom the only way that it would
have an impact is that they now have their notes, well the 8 people that chose to
print them off.... So I don’t think my in class performance has changed either
way. I still do things the same way, because I still print them off and give them all
the handouts, so there’s no excuse for them not doing the homework, they have it
online and I gave them the two forms and I said there, you do the homework. So I
use it as a backup, I use it so they can’t say I don’t know what we did. There’s no
excuse (F05).

I’d say very little, very little. I think it’s, it’s more of an information repository
than impacting my teaching style or progressing my teaching style (F17).
The way I teach, I do find it a bit of a nuisance because I have to get the notes up there ahead of time and not just focus on my lecture, or my class, or getting materials done, or I find I’m spending a lot of energy scanning my notes because you know what, sometimes I use a bit of this, a bit of that, a bit of that, so I can’t type everything in, and if I scan it, it takes half an hour because I only have a flatbed scanner, the school doesn’t have the photocopiers that scan stuff for you, so I found that to be taking away from my class time (F19).

**Question 12**

Is there anything that you would like to add about the affect of Blackboard on learning?

The responses to this question fell into five broad categories: ease of use of the CMS, constraints of the course sites, a comparison of the technology skills of the teachers and the students, the challenges of information overload and the professor’s need to learn more about the tools available within the CMS in order for them to use the course sites more effectively. It was again evident from the responses that the professors felt that purpose of the use of the course sites was to supplement what was going on in the classroom, therefore getting the right mix of online information and classroom interaction was critical.

I use Blackboard, I think Blackboard is very important to use because it’s really helpful for the students as far as, you know, I’ve missed a class, that they can get the lecture. It’s not as good, of course, as talking to me, because Blackboard just has the talking points, they don’t have all the little anecdotes and the verbals behind it, so I really do want people, I need them to come to class, but if they do miss. I use Blackboard for the lectures for sure (F06).
Ease of use of the CMS.
I’ve found more resistance from the teachers than the students in terms of using Blackboard. I find that one interesting too though, because most of the people that I’ve worked with as far as getting into Blackboard and getting onto Blackboard and that kind of thing have been quite surprised about how quickly they can learn and about how easy it is to do, and they get quite comfortable quite quickly, and I think that’s a real good things as far as how things go with the learning experience, with learning Blackboard (F18).

Constraints of the course sites.
I don’t think of it in any negative way, I just wish it was faster, you know that I could navigate it as quickly as a website. It’s painfully slow and I think that if an instructor has zero patience it can be problematic (F11).

The other thing is that I mentioned that the environment wasn’t as dynamic as I liked, So for example, if I want to share materials with another instructor, it’s a pain, you know a special site has to be set up or there have to be several emails exchanged, and you know (F06).

Learn how to use the tools and use the sites more effectively.
I think it’s a great tool. I’d like to do more and I think it would be great to use it more to advance learning because I think now we mostly, a lot of people use it just for course documents and the basics, and I think there’s probably a lot of potential to make it more interactive and more interesting and more visually stimulating, but I think a problem is the investment in time and learning and
maybe even technological difficulty, you know when you can’t access it or when something goes wrong and I don’t know how to fix it, you know so if I can’t get something to open or download something I’m stuck. So I think having to use it to make more meaningful learning and advance critical thinking in the students, which is what employers want, not just what we want, so not just for basic use, but more advanced learning. And I’d say that we have, I see most professors have a long way to go to be able to do that, to be able to understand how to use it and you know what are the students finding advances their learning using Blackboard and experimenting, you know I think we just have a long way to go to experiment. And I’m sure there are some people that are doing really, really neat stuff, but I don’t know, I would suspect that’s not the majority of people, so I think we have a ways to go in terms of that (F08).

I don’t know enough. I need more learning in Blackboard, and if it’s me then I would suggest 50 percent of the faculty who are over 45 need more learning in Blackboard to utilize it for students’ benefits ..... I feel there’s not enough emphasis given by Seneca to force us professors to become really, really proficient.(F02).

I think that there should be some consistency with the use of Blackboard because I’ve heard from students that one teacher uses Blackboard, three don’t, one uses grade book, one doesn’t, some students don’t go to class because all of the notes are posted online, and so it’s being used in such a different way for different people that students might not get why it’s being used, or the benefits of it, or, so I think there just maybe needs to be some more consistency. I know that some areas
of the college are saying okay, we at least need to be using grade book in our faculty and that's a great start, I just think there should be some consistency. But other than that I think it's a great tool for teachers and students.

**Challenges of information overload.**

I guess I like Blackboard for the way it can centralize a lot things I need to be doing, I have my information there, like for me, information management is much more difficult these days than time management. I mean that's the issue. There's just information everywhere and I have it everywhere, and I never know where I can find what I need, and so Blackboard has been helpful in getting me to, as long as I can trust it to be there and that the system can work when I need it then I can relax. I can work at home, I can work wherever I am and I know it's all there as long as I know that it will be able to boot up, which frankly it does, well, you know, not that it does more than it doesn't, you know, most of the time it's rarely, you know, little blips, but generally speaking it's very reliable (F16).

I think it's certainly a step in the right direction. I know that when we were learning we didn't have that, we would always have to go to the library if there was anything that the professor put for us to review and we'd have to photocopy them. Certainly this makes that easier because I can access that information anywhere I want, and I may not print everything, I may just leave it online, but the, it's almost like you have to manage the data. You know, myself as a professor I have to manage what I put up there and know how to catalogue it because I'm finding sometimes, you know what, I put versions up there and then I have to re-load different versions, and then I get lost, where's my file, where's my actual
real file. The same with students because when they’re studying, you know what, I don’t know how they manage all of their information, so maybe it’s a better way of managing data (F19).

**Difference between technology skills of the teachers and the students.**

But I think that’s a really interesting opportunity, and I think that, you know one of the things that I mean, I think that the gap between what professors understand learning is and what students think it is is different. I mean I study different generations in education and I found, and I’m much more aware of what they think about learning and teaching methods and things and because I like PowerPoint and I find it very interesting and visually stimulating, they think of it as lecture. So when I’ve gone through just the PowerPoints through Blackboard or whatever they’re going yawn, they think it’s just lecture transmission. I think it’s highly visually stimulating and they’re in different place in terms of their use of technology. They’re used to graphics and things and I’m just not that savvy with that at this point. So I think we’ve got a lot to learn, you know in terms of how they like to learn and how we are teaching and bridging that gap (F08).

But I think that’s a really interesting opportunity, and I think that, you know one of the things that I mean, I think that the gap between what professors understand learning is and what students think it is is different (F10).

I don’t know because I’m only here so limited. I mean, I hear the muttering and the nattering of all the other teachers going on, that’s what you should be exploring. That just blows my mind because you’re looking at a generation that
didn’t grow up with computers, you know, sort of coming together with a
generation that’s going to hack into your personal email so that’s kind of
hilarious, while I’m sort of in the middle, I’m in my 40s, although some of the 40
year olds are still fighting the curve. I think it’s a great tool. I embraced it long
before it was mandatory, and if there’s anything else that you have that you think
is efficient, I’ll try that too (F05).

Everyone agreed that the use of the course sites had a very positive effect on the learning experience:

Well I think many students see Blackboard as a very good thing (F13).

So for me this is, it’s really, it’s really encouraged me to change the way I use the
computer and the Internet and I’m quite happy with it, I think it’s good (F10).

Well I don’t see it in any way being negative, I think that you know, any time a
professor has an additional tool, all the better (F11).

Well I think the concept of Blackboard has got immense possibilities (F17).

Well so just to finalize this really is an excellent tool and the way it is set up I find
it’s really useful, and actually I don’t have problems. Sometimes, in a way it’s
[the CMS is an example of], technology works…. I need to work, and I keep
working on my own skills in using Blackboard. And the more I use them, the
better I think I am, and something I think about me, but… I think students really
appreciate Blackboard and they see that Seneca is trying to prepare them for work
in the 21st century, that’s where we are because we use technology and that’s what
they're going to see of their jobs. So I think this is a great advantage for the college that we have [the CMS] (F14).

The professors were prompted to use the course sites for a variety of reasons, but at no point during the answer to that question did anyone say that it was because they felt that it specifically helped the students learn; only one professor, briefly commented that the use of the CMS allowed him to appeal to different learning styles. There was much more discussion, during the answers to that question, about the benefits of the course sites to the professors themselves, rather than to the students.

When asked to define learning, to set the context for their answers, much more time was spent discussing learning as the transfer and acquisition of information, than the analysis and application of that information. By far the greatest use of the sites was to post information and grades and this was reflected in the students’ comments as they spoke about most of their professors posting content and grades. The students and professors had different views about the students’ attendance at class as a result of notes posted on the course sites.

The professors and students agreed that the use of the sites was very beneficial to learning but the students placed much more emphasis on the value of the use of the sites as a mechanism, a guide, and a way for them to be organised and to stay on track than the professors did. A good example of this difference is illustrated by the professor who described the site as a “transport” mechanism and the students who described it as a “guide light” and a “bridge”.

The use of the sites as a communication tool was noted as being of much more value to the professors than it was to the students. The very mixed feelings about the use of the discussion board were evident among the students and the professors. Some of the professors noted that
they thought that the students liked the discussion, but only one student made any reference to "liking" the discussions.

There was a strong agreement among both the students and the professors that what was really beneficial was the use of the gradebook, even though the professors talked about not understanding why the students found that to be so beneficial. It was evident that the professors had not asked the students for feedback about the use of the sites, as most of them prefaced their answer to what they thought that the students found most beneficial by saying that they had never asked the students that question. When asked about the barriers to learning that the use of the course sites could result in, the professors discussed access to a computer and the students not knowing how to navigate the sites; however, the findings from the surveys and the interviews indicated that for the overwhelming majority of students neither of these are barriers.

It was accentuated by both students and professors that even though the course sites had an integral role to play in learning, technology was not a replacement for the dynamic of the classroom and the social interaction that happened in the face-to-face spaces.

**Interviews with Faculty Who Do Not Use the CMS**

Three professors who teach in the three year business diploma programs who do not use the CMS volunteered to participate in the study and were interviewed. These professors all indicated at the beginning of the interviews that it was imperative that they were not identified in any way in the reporting of the findings. They said that they knew that there was a strong "push" by the college for them to use the sites and that all the academic chairs in the school of Business encouraged the professors to do so. While all of the professors using the CMS, who were interviewed, said that they would be interested in speaking with me after the study was
completed to find out about the findings and recommendations, none of these professors expressed any interest in this.

The interviews followed the semi-structured approach using an Interview Guide (Appendix E). The purpose of these interviews was to gain insight into the reasons why the professors had chosen not to use the course sites and their perceptions of the effect of the online environment on learning. During the interviews the professors often used specific examples about the courses that they were teaching, these are not included in the quotations from their responses, in order to ensure that they cannot be identified.

Their answers to the first four questions on the Interview Guide are summarized in the paragraph below.

Question 1
What courses do you teach?

Question 2
How long have you been teaching?

Question 3
How would you describe your level of experience with using the Internet and computers?

Question 4
Do you use your course sites?

These professors had all been teaching at the college for a long time: 22 years, 30 years and 34 years. They reported that their Internet and computer skills ranged from okay to very facile, and that they often used the Internet to do research and regularly used email to
communicate with colleagues and students. One professor explained that even though she had no issues with using the Internet, she had a fear of computers. She was afraid that she would break something on the computer. The response to the question about whether they used the course sites was an emphatic "No".

**Question 5**

Is there a reason why you have chosen not to or prefer not to use Blackboard?

Two of the professors responded to this question saying that they did not know what the system could "do" for them or the students:

I honestly have very little idea what it is, it has never been demonstrated to me or explained to me in any way, so as far as I'm concerned, the method I have of delivering course information, see part of it is I don't even know what it is, but we'll assume for the sake of argument I know it has something to do with delivering assignments and marks from assignments and I'm perfectly happy the way that I'm doing those things. If there are other advantages or arguments for using it they have never been explained to me or demonstrated to me in any way, or even identified to me to make a choice about this. So, I mean I can't say that I've studied it exhaustively and I think that mine are superior, because that's completely wrong. I have no idea what they are and as far as I'm concerned the things that students have brought forward to me seem to be involved in the assignment or the due date on Blackboard or will our marks be posted on Blackboard, and those elements are already well handled in my estimation. They
have never inquired as to other things on Blackboard, so whether there are other things that could be there I don’t know (F09).

They all said that if they used the course sites they felt that the students would not attend class, and they did not want that to happen:

I hear from a lot of faculty members that they post their notes on it, they post their lecture notes on it, they post their handouts on it, I don’t agree with that because I don’t see those students come to class if I do that, and if I were them I wouldn’t come either (F01).

That’s basically it. I want them in class. If it’s on there, they’ll say oh miss I looked at it on Blackboard, and that for me is not an excuse, because you can look at stuff on Blackboard. I also think that because they’re surrounded by so much technology that if there’s any way I can get them to have person-to-person contact in the classroom that’s how they’re going to learn (F09).

Question 6

Have the students ever asked you why you don’t use Bb?

The three professors had all been asked why they did not use the course sites:

Yeah they complain. They complain all the time. They always say “miss did you forget to put the class on Blackboard, and why can’t you just post the handouts on Blackboard or why don’t you put your lecture notes on Blackboard so we don’t have to take notes or listen or do any of that stuff?” But I always say “well I don’t see that as a learning experience.” But having said that, lots of other people tell
me that the grade book works well and it works well for announcements and it
works well because it's sort of one stop shopping for the students, they see the
whole thing laid out (F01).

I have had students for instance say that they weren't sure they were registered in
my course because it didn't show up in some way, and that turned out because I
didn't have something on Blackboard, and I have had students say what is the
assignment, or what the due date was, or whether their marks would be posted on
there, but otherwise no (F04).

Question 7

What is your perception of the impact of the use of Blackboard on student learning?

One of the professors spoke about the CMS helping students to be more organised:

I think that [the use of the CMS] can organize things for them. I'm not convinced,
it's a means to an end, it's a tool. Learning requires criticism and thought, so this
makes it faster, more efficient to find things, but the actual thinking, the actual
problem solving and critical thought I don't think could take place there. They
could access an article, they could access a website, they could look at a still,
they've got to work their way through it (F01).

Another said that “the computer is a wonderful tool” but also said that “it is too passive a tool”
and noted that:
Sure, I mean there are many, every student has different ways of knowledge getting in to their heads, and the more mixed-mode you can make your delivery I’m sure the more valuable it is (F09).

In the answer to this question one spoke about the technology skills, or lack thereof, of the students, but even after probing did not specifically answer the question. Instead she talked at length about the students not having the technology skills to do “proper” research in order to complete their assignments.

Yeah, I mean, I’m not, people automatically assume that students are the sophisticated ones on the computer and the teachers are not… (F04)

**Question 8**

Are there any ways in which you think the use of Blackboard may create a barrier to learning?

The barriers to learning were seen as the CMS taking on the role of the teacher and the use of the course sites resulting in passive learning:

Yeah, and that seems to be something that everybody is talking about now, and it’s an evolving thing. If you’re not careful Blackboard becomes the teacher (F01).

When asked to elaborate on this the professor explained:

It provides the resources, it provides the information, it gives you a timetable, a timeline, etcetera, and the students think the learning begins and ends there. So
they can read a case and they have one opinion, but critical thought and all that requires many ways of looking at things and alternate theories and offering things, can’t do that for them. There’s no room for discussion, debate, even if you go on the discussion board it’s still not the same as driving home principles and working on stuff (F01).

Another professor said:

I can see, yeah, there could be a lot of barriers. .... You know, I think someone, you know I came up as an elementary school teacher first, and so to me that’s been the most useful thing I’ve ever done about teaching is that you’ve always got to be checking your audience, checking your audience, are they getting it, are they getting it, are they getting it. If you’re using a passive environment like that, you’re not checking, so you’re not getting feedback and that’s only one-way communication, so it seems to me that that’s not a learning situation (F09).

One of the professors responded with another interesting comment that alluded to the professors’ lack of knowledge about the CMS:

No idea. I honestly don’t know what it is (F04)

Question 9

How would you define learning?

That is a tough question, and I need to say this in a sentence or less? Critical thought; problem solving; generating alternate theories, plan b’s, plan c’s; application of ideas, take basic ideas and apply them; understanding; taking the
principles and being able to carry them forward, so not just in the classroom learning but application also in higher level courses and in the real world (F01).

Well I’m coming to this cold, but I guess my definition has something to do with the appropriation of new materials in a measurable way (F04).

Oh, for me it’s the acquisition and application of knowledge, the ability to apply knowledge that you’ve acquired, and the acquiring of it is part of it as well. So I think being a passive reader of what happened in class, which is what I understand that Blackboard is, you know, people put their notes and stuff that they cover or that they are going to cover on there. I don’t find that learning. Maybe it’s the acquisition, but it’s not the application, and the application is that you’ve either mastered a skill because this is a skill-based course by being there, by participating in discussions, by being able to talk knowledgably about the stuff that you’re learning. So I guess that’s pretty well what I think it is, yeah (F09).

**Question 10**

Is there anything that you would like to add about the effect of Blackboard on learning at the college in general?

While responding to this questions, these professors all indicated that they felt that the college had not provided them with enough information about the CMS and the resources explaining how to use the system and why they should be doing so were not readily available. As we spoke there was a sense that these professors were quite happy with the way they were teaching and they did not see any reason to change what they were doing.
As I say, the vast communication breakdown in this is somewhere here that I should be so poorly informed [about the CMS], and I'm not blaming people ....

Right, and I assume that when people come to the college new that there is orientation and information that is given to them, but if you've been here all along, clearly not. And for reasons, you know, external reasons like we don't have meetings and things like that, you know, things that are really outside the control of people, but you know, there's no substitute for those things, that would keep the chain of information, the flow of information going. I mean even when we had to start putting our grades in electronically there was a sort of, you know, if you'd like to do it this way, and I'm thinking why would I do it that way if I've been doing it the other way and I'm quite happy with it? It was just like you should put them online, there was nothing saying this is how you have to do it, so what if there was some sort of catastrophic computer failure? (F04)

I don't know, I mean I know teachers of my own vintage and generation who, you know, long before this particular system were making extensive use of Internet content, and you know, things were posted on the Internet for their students and probably were groundbreaking in this respect, so I can't just say they're old fossils that you know, are comfortable doing things this way and they don't want to go in for training, it's not that...... I use it [the Internet] in my preparation and I use it, I spend a lot of time looking at things [on the Internet] ...And I've prepared, for a publisher I prepared a student web guide, you know, with sources and things for students to use and of course I had to spend a lot of time finding these things. It's not that I don't feel this is a valuable resource, I mean when I
teach in the classroom I don't use it or PowerPoint or anything, I write things on
the board. So you know, I think that you would probably find it was a sort of
contemporary thing [for professors] to use Blackboard you know they [the
professors who use the CMS] tend not to really write on the board [in the
classroom] (F09).

This professor went on to say that the CMS had not had any impact at the college:

I perceive no difference to anything. We have the same complaints, we have the
same as we've been having for the last thirty-some years, so no, I do not perceive
it. Perhaps there is (F09).

And then noted:

I find it useful. A lot of my students come into the program and they're late, you
know, two weeks late, and I'll say to them, you know, it's pretty late, you can't
just crash a teacher’s course in week three or week four and go in, and then I will
ask the teacher if they use Blackboard and I will say to the student, okay, you're
responsible for making sure you know that material before you walk into your
first class, I find it can be useful that way. Also for students who are special
needs, I can see that for them having the reinforcement of Blackboard is very
helpful. But for skills-based courses they have to get it from me, you know, not
because I think I'm the centre of the universe, but---(F09).

Another one noted:
But they tell me it's much easier for them, other teachers put everything on Blackboard and they can access everything at once. The students tell me it's easier for them, so I’ve got to believe that and try to go from that (F01).

These three professors all stated quite emphatically that they did not use the course sites because they did not know much about the college’s CMS and information about the CMS had never been communicated to them. The CMS is integrated within the college’s portal where the professors would have to go to access their email and the administrative and student information systems. The module with the course sites is located at the top right hand corner of the portal, so it would be almost impossible to teach at the college and not be aware of its existence. These professors did not identify their lack of skills or time as a reason for not using the sites, while this was noted by the professors, who used the course sites, as being a barrier to its use by professors. It is interesting that one of these professors stated that she had created a web guide for a publisher. She evidently saw the value of the use of the online environment in learning, yet had not used and did not have any intention of using the sites.

There was not much response to the questions about ways in which the course sites could help or create barriers to learning. One professor began her response by saying that there were many ways that the CMS could help learning and noted that the greater the variety of tools used in teaching the more valuable it is for the students; however there was no response when probes were used for more detail about her statement. These professors, the ones who use the course sites and the students all noted that one of the greatest barriers to learning occurs if technology is used as a replacement for face-to-face interaction.
The professors' comment about them not using the sites, because then the students would not attend class fits with the students' observation that the professors use this as an "excuse" for not using the course sites. It is often stated at workshops and school meeting that if notes are posted on the sites the students would not go to class, the students who participated in this study clearly do not agree with the professors in that regard.

The most interesting comment made during the interviews with these professors, was made when asked if there was anything that the professor would like to add to the discussion. After noting that the CMS had had no impact on the college and on teaching this professor stated if a student had to be in enrolled in a class after the semester had already began, she always tried to put them in a course where the course sites were being used. She then went on to discuss, in detail, the benefit of the use of the course site for students with special needs. This was the only time during all of the interviews when this benefit to learning was mentioned.

*Interviews with the CMS Advisers*

Seven of the people who were involved in the decision to purchase the CMS and its adoption and implementation at the College volunteered to participate in the study and six were interviewed. One person, who initially volunteered, said that due to time constraints, it was not possible to arrange a time for the interview. An interview guide (Appendix F) was used during the semi-structured interviews and the same questions were asked of all of the participants. At the beginning of the interviews, each of the advisers was asked to describe his or her role at the college, when the decision surrounding the use of the CMS at the college, was being made, and his or her role in the adoption and/or implementation of the CMS.
Question 1

Please describe your role(s) at the college when the decision to purchase a college-wide CMS was being considered and was made?

After the interviews permission was granted from the president of the college to identify the college in this report. As a result of this, in order to protect the identity of these people, as promised in the informed consent, the information gathered from this question is not presented.

Question 2

How was the decision made to adopt a college wide CMS?

Each of the participants answered this question differently. One person said that the decision to purchase the CMS was made by the department of Information Technology and Telecommunications (ITT or IT):

There were issues with the number of systems being used at the college, there were multiple systems being used, each one on a very small scale. Each department seemed to be doing and using something different. All of these systems had manual user creation which was a problem for IT (IT is the shortened form, used by the advisers to refer to the Department of Information Technology and Telecommunications). As the use of these systems was slowly growing it was becoming a problem for IT to manage and support. IT did the central support for all of the smaller systems and it was becoming almost impossible to provide that support. The decision was made by ITT that an automated way to manage users was needed. It was also felt that it would be best if there was a central platform for all students. IT also wanted a portal to provide a central place for students to
Two of the advisers said that a number of systems were evaluated and then an RFP was issued. According to these two advisers, a number of different people were asked to describe what they thought that the specifications of the system should be and then there was a committee that was formed to review the response from the RFP.

We had a number of faculty working in the area [using technology in their courses] so they went to work with us to actually do the bid, to look at the kinds of things that we wanted to do. Everybody realized that we couldn’t have multiple, or that it was very difficult to have multiple systems, and support them all at the right level. We wanted to get the best system in terms of faculty needs as well, [as well as administrative requirements] so faculty members sat on the committee to review the course management and learning management part of the software (A02).

It was interesting that two of the Advisers, A01 and A02 had such different perceptions about how the decision was made. At the end of the interview with A02, after the recording device was turned off, I asked about the faculty, who had participated in the decision making process, whom had been mentioned earlier in the interview. I indicated that if they were still at the college I would invite them to participate in the study, but A02 could not remember who those people were.

Four of the advisers said that they either could not remember or were not sure how the decision to purchase the college-wide CMS had been made:
How was it made? That was a good question. I’m not one hundred percent sure, to be honest with you. At the time, we were developing content and using a custom-made kind of environment and the thought was that because this was becoming more prevalent we needed something more enterprise-wide in order to make it work. So the feeling was that we needed to get technology that was working and up and running and get things going quickly. How did the actual decision get made? I don’t know (A03).

Another adviser said:

I don’t remember.... It would seem that administrative decisions were made for what we felt might have been an academic solution, and so administratively it fit the bill. It was the right price, it worked well, it did this, it did that, so it was a good administrative fit. It would talk to our administrative processes, so it was more of an administrative decision (A06).

I don’t think that any of the, sort of, non-IT units were involved in that, I think it was just done. Whoever had knowledge of this, and you know, I think it was primarily IT (A05)

I think that the decision was made primarily in the IT department. I am not sure. There is nothing in my recollection that suggests to me that there was a wide town hall about it (A05).

In discussions with colleagues at the college it had been revealed that in fact the purchase of the CMS was “announced” to the chairs deans and directors at the college after it was purchased.
Question 3

What is your opinion about the way in which the CMS was selected?

There was skepticism about this question and four of the advisers asked if I was sure that I wanted their honest opinions. There was a feeling that the process for selecting the CMS was not clearly defined. They did not feel that the entire adoption, implementation process was given much consideration or was ever clearly defined. There was a sense from the participants that the decision happened very quickly and without much, if any at all, consultation with academic leaders and faculty:

I don’t think the process was long enough and thorough enough, to be honest with you. I think the idea was that it was exciting and we needed to get something in place and this was something that could get up and running quickly. I think the process was, well, my sense was rather ad hoc now that I look back at it now. I probably would think that more folks needed to be involved. The decision was made I think fairly quickly. Yeah I think more folks needed to be involved, particularly from the academic community (A03).

I think it could have been more collaborative; faculty could have been more involved in, particularly in being asked what they needed. Albeit, I do understand that they might not have known what they needed and it’s probably easier to make the decision the way it was made, but reaching any kind of group consensus is never easy, and getting anybody in this place to agree on anything is diabolical, so it’s probably why it happened the way it happened. I mean, I understand all of that but it might have been a bit more collaborative (A06).
One adviser noted that ITT was “very happy with the decision that was made”:

In many ways the decision was not a difficult one. Blackboard was the only one with an automated enrollment and SIS (Student Information System) information. In 2000 IT purchased Blackboard and its top feature was its efficiency in relation to administrative tasks. When first purchased, the college continued to support the smaller systems in use (usually until the current license ran out) and at first it was the decision of the user about whether to use Blackboard or not.... As a matter of fact we had such a clear idea of what we were looking for that we were willing to write our own CMS. We just knew that we had to get everyone on the same platform as more and more people were asking to use something...... When we were looking we focused on the administrative functions made possible by the CMS: automation of everything – users, courses, teaching assignments, enrollments... We really wanted to lessen the admin role that the Help Desk was playing. We were also very determined to provide a single “Portal” solution – one point of entry, one stop (A01).

I think it was fair, I think it was a good assessment of what was in the market at the time, I think it came down to either Blackboard or build one, and I think we made a conscious decision that building one wasn’t the right approach (A04).

*Question 4*

What were your expectations of the impact of a CMS at the college?

Two of the administrators, who were part of ITT, said that they had not expected a whole lot:
We (ITT) were not expecting a whole lot. We knew that we wanted to make a CMS available to everyone who wanted to use it— we did not really know what to expect— because it was so early in the history of the CMS. There was no forecast. I guess what we were ultimately hoping for was that 100% of the people would use it (A01).

One began his answer by noting:

At the very beginning it was to build a Gradebook. I want a Gradebook, it was almost that simple… Blackboard in Enterprise version [which was purchased] offered us an integrated tool set that could be tied back to our corporate data (A02).

While other advisers said that they had expected that there would have been a significant impact on teaching and learning at the college:

Well I think at that time we all thought expectations were high, that this would provide, you know, a paradigm shift in teaching and learning and that we could use it for enhancing teaching and learning, training, more opportunities for distance education, online learning, and all that kind of stuff. So I think our expectations were high that it would be embraced and adopted and used as a useful addition to the systems at the college (A03).

I was really hoping that there would be, I was really excited about it and I was really hoping that there would be a real groundswell of people also as excited and
who would really want to adopt it, want to use it in their teaching and learning
and want to use it as a tool (A06).

**Question 5**

What is your perception about the way in which the CMS was received at the college?

There was a mixed reaction to the CMS at the college – those working in ITT felt that it
had allowed them to achieve their goal for purchasing a college wide CMS solution.

We really wanted one place for the students to go to get information about their
courses and purchasing this particular CMS allowed us to achieve that goal (A01).

Good. I mean some faculty members who really wanted it said great, let’s go for
it, let’s do it, this is wonderful; thank god we’ve made a decision about what to
do. Other people were saying wow this is controversial but it wasn’t Blackboard it
was course management systems and e-learning and why are you doing this
(A02).

While the academics being interviewed seemed disappointed with how it was received. It did not
achieve the effect that they had hoped.

Well I think like everything else there are those who are in the know and they
receive it very well and then there’s the others and there are more of the others
than there are those who are in the know. So it’s always, these things are always
treated with some kind of suspicion, you know, something else to learn, you
know, where is your input, and initially too there were lots of problems with the
system and that certainly didn't help the confidence of faculty when it was first put in (A05).

As was pointed out by one of the advisers, and evident from the analysis of the documents, many felt that there was not enough communication between the IT areas and the academic areas of the college:

I think that maybe it wasn't, maybe I'm answering why this way, but maybe it wasn't marketed quite appropriately and it was a bit of a let down, it was a bit of a, it was a bit anti-climactic, yeah, so what, you know? And there wasn't the excitement and enthusiasm that I thought there would be about it. I was a little disappointed in the way it was being received (A06).

Question 6

Please describe any implementation problems and issues.

There were a host of implementation problems and issues. In addition to the major challenges involved in integrating the CMS with the existing registration and human resources systems:

So the challenges were getting the right interfaces to interact with our backend systems, there were a lot of performance issues at the beginning (A04).

IT had to take a very close look at everything that was being done at the time – all procedures, processes and practices –we had to redo most of what we were doing – that meant we also had to work collaboratively with many different areas at the
college. For example – we needed a consistent course schema – so we had to work with Registration to do this (A01).

There were also a number of issues because, at the beginning, the system was not stable:

Yeah, well what we had initially was a user group, an implementation group, you know and this is a place where people dealt with lots of issues because when you have newer technology there’s a question of upgrades and changes, migrations, and robustness of the technology itself. So Blackboard had some issues. One big, big issue we had a change from five to six…. moving from one version to another, well there were a lot of [problems]….some faculty suffered (A02).

From a teaching learning perspective, the Advisers noted that it was a challenge to determine how to get faculty to use the system, to figure out what kind of training was needed and who would do that training.

I think it was difficult in implementation in terms of getting it out to the broad community. ….So if you’ve got a purchase and you’re implementing it then you’ve got to think through how is that training going to work? Who’s going to be trained? How do we get faculty on board, how do we create the help and the training and that kind of stuff to make it work? So you know, all of these because it’s a brand new system, new to the college and colleges in general and higher education in general, that how do you do that? How do you create help information for students, help faculty, help support, those kinds of peripheral services that need to be there? Those are kind of the implementation challenges for sure. Then of course the working with adoption rates, you know, are people
using it, how often are they using it. The other thing is working with people feeling that they are perhaps not in the loop in terms of the decision making and have previous biases towards certain other technologies, that don’t want to use it for other sorts of various reasons, those kinds of challenges as well (A03).

Our big challenge from the centre’s [the Centre for New Technology in Teaching and Learning] perspective was how we promote the use of a system like Blackboard to the mainstream. So we started targeting our efforts to those faculty that really you would never anticipate wanting to use [technology] like some of the liberal arts or something. The assumption is always go to computer studies but in fact they were not the good ones they wanted to do their own thing. We went to the liberal arts [faculty], the gen eds, the mainstream, starting to get them to convert and then adoption started taking off. So my mind is, make it user-friendly for the average faculty not the pioneers because they probably won’t like it anyway (A04).

One adviser noted that there the biggest issue with implementation and adoption arose because the push for adoption was initiated by the IT department:

There were several adoption problems and issues – perhaps the biggest was that there is a major difference in the “culture” between academics and support staff. In the beginning the system was primarily supported by the CMS administrator and the Employee Help Desk. Having only support staff support an academic tool turned out to have a negative effect on adoption. When a faculty member joined the CMS team there was a tremendously positive impact on adoption (A01).
Question 7

Do you think that the college made the right choice?

All of the advisers said that they thought that, at the time, the college made the right choice.

I think it totally made the right choice. Totally (A02).

Well I would say yes (A05).

One of the advisers alluded in his answer that there were in fact two choices that happened at the same time – the choice to go to a college wide CMS and the choice to use Blackboard as that CMS:

I will say that at the time it was the right choice. I think that based on the technologies that were out there and the choices that were available, that the reason that it was adopted most often cited was the ease of use, and that it was also a fit within the skill set of the department that was going to support it. You know, ITT skill set.... So that just made sense from, purely from a management implementation process. In retrospect, from an academic, pedagogical and those kinds of things, I think the jury is still out whether or not Blackboard was the right choice. I think the other thing you have to think about is what’s the right choice in terms of course management systems itself. So is Blackboard a right choice, or is going to a course management system the right choice. So I would say going to the technology of course management is absolutely the right choice. Blackboard was the right choice initially. My view at this stage is that it might still be the
right choice given our institution but one thing that’s missing is we never do review and involve the community again to review whether or not this is the right path is all. That’s my view at this stage (A03).

Question 8
What is your perception of the impact of the CMS on the way that professors at the college teach?

Convenience, single location for course documents/assignments. With semester to semester transition, consistent content (A01).

You know, perhaps I can’t talk about that as well as others but I did have comments made to me by some faculty members that this changes everything (A02).

I am not sure it’s impacted the way they teach primarily because they don’t know what the system can do to help them integrate technology into the curriculum. It’s a learning process and regardless of how many workshops are put on that’s not the way to get to them. So many faculty don’t use it, I don’t think they use it effectively. I think they use the nuts and bolts of the system or the grade book, announcements, they post notes, but in terms of really using tools to enhance the teaching/learning process I think that’s totally under-utilized (A05).

It’s a mixed bag. I’ve seen no impact, what I mean by that well, first of all you’ve got faculty who don’t use it, so it has no impact in terms of their teaching other than students demanding why isn’t my course in Blackboard, so they’re forced to
answer those types of questions that they didn’t have to before. I’m not being judgmental in terms of what’s right or wrong I’m just saying that this is the kind of things that I see. I see some faculty going on to Blackboard and using Blackboard but very, very minimally, so it’s not affecting how they teach; it’s just providing another avenue for students to get access to the content, their grades and information about the class. Then I see faculty use it quite innovatively and it’s changed the way that they approach teaching so that they’re moving away from lecture-based kind of teaching centered delivery to a more of an inclusive communication constructivist approach and environment and you see the range of one end to the other across the board. So what I would say is it’s still very early in the educational technology game and that we’re seeing faculty shifting in teaching and learning and using the tools, we’re seeing faculty coming along very slowly, you know, still just using it as a kind of management tool not as a teaching tool. So there’s a difference between Blackboard as a management tool versus using Blackboard as a teaching tool. So it’s all over the map. Now if you ask me what do I think in the future, I think you’ll see more and more people drifting to this side of the continuum whether you see more innovative teaching and learning ways. My sense is that the early adoption, and I should have mentioned this before, adopting Blackboard and like technologies was pretty much to solve administrative problems. Now I think we’re getting into an academic time where we want to use it to not solve but to, well I guess I could use the word solve, but to create, to help with academic problems as opposed to just administrative problems (A03).
I think they're starting to get excited about the communication ability with their students. They like the grade book, they like to be able to post their materials there, I think they're getting, starting to get excited now about the creativity they can use with it and really the freedom it’s allowing them. You know, not having to lug all their handouts every week for weeks on end, and I would say more and more are getting excited about that. I think that they’re really, everybody is really getting into email and communicating through those electronic tools so it’s just an extension of that. I see that change just in the last couple of years, they’re really starting to get more excited about using it. It’s almost like the way you do business now, it’s the way you teach is to include some sort of technology, and those who aren’t using it I think feel really left behind and are really keen and a bit nervous, but with encouragement are really keen to catch up (A06).

**Question 9**

What is your perception of the impact of the CMS on the way that the students learn? Please describe the ways in which you think the CMS enhances learning as well as the ways in which it may create barriers to learning.

The Advisers could not think of any barriers of the use of the CMS course sites that would create barriers to learning. This comment summed up the feelings of everyone who was interviewed:

Okay, barriers to learning, I think that the barrier that’s there is only the mental barriers that we create about using technology (A02).

Another pointed out that barriers can be created if the faculty do not use the course sites well:
From the student perspective I think that it only creates barriers when the faculty aren’t prepared to use it properly, in other words when a faculty tries to teach in the same way that they teach in a lecture and take the same 40 minute video and put it into a website and say okay now it’s ready to go I think that’s a barrier because you’ll just lose their attention. So I think unless you have good instructional design the barrier is the students don’t understand what the teacher is trying to do with it and the goals of the course (A04).

Providing one place, for the students to go, to have easy access to course information was seen as the way in which the course sites had had the most significant impact on learning. There was some doubt expressed about whether the teaching and learning process had been “enhanced” by the use of the CMS.

Well I think that students are much more technologically wired than most. They’re up to date, and I think one of the things for them is accessibility, and so those professors who post notes or post anything to Blackboard then it’s accessible to the students. And whether you’ve missed a class or what have you, the information is there I think 24/7. So, I think it’s very, a positive thing for the students, but it’s more of, you know, a repository of information for students as opposed to more of a tool to enhance the teaching and learning process. But it has made sort of information more readily accessible (A05).

I really think it’s a great tool for students, particularly our part-time students who are only here 3 hours a week… They’re getting lots of access and lots of options. I think it’s a great review tool, I think it’s an ability, a way that the students, a lot
of the time our students have a real problem meeting in groups, they’re all assigned group work and they can’t get together at the donut shop two hours before class, they can’t get together on a Saturday morning they’ve got family commitments or whatever, and I think that the electronic tool is really great for that, it really can facilitate their group work. I think it’s a, it think it gives the students an avenue for communicating with each other alternative to just plain straight email. And I think that more and more they’ll get used to using it. They’re very electronically savvy anyway, so I think that it’s almost an expectation that courses will include some kind of this now, so we’d really be behind the times if we weren’t doing it (A06).

One adviser talked at length about the technology skills of the students and the way in which the user interface of the CMS would have an impact on learning:

I don’t want to paint everybody with the same brush, but we do have a technically savvy student population coming that understand, or at least are not afraid of technology. So in that sense the barrier to technology anxiety or anything like that I think is reduced. There still are some students, don’t get me wrong, that have that...... You need to have a certain level of technology either at home or come in to access this level of technology. If students that are perhaps can’t afford or are not familiar, say some of them have not grown up in an environment that uses technology a lot then that can create a barrier because they have to learn the technology as well as the subject matter. So we sort of assume too that students are savvy and don’t have a learning curve with the technology but every technology, regardless of what it is and however computer literate you are, has a
learning curve. So you have the learning curve with the technology as well as the learning curve of the curriculum. .... The reality is that the technology and the pedagogy will affect the learning regardless of whether you think one or the other is more important. Though, it will dictate, just from the way in which the technology is designed, the way in which it’s used it dictates a certain way of going about and acquiring information. So Blackboard, for example, and the way it’s designed, its interface and its menu system and its folder structure and its forms follows a certain kind of design and linear path so just by default its going to have an impact on how people access that information. They have to follow a certain set of processes in order to get that information or to communicate with the tool using the way that it’s set up, so it is going to affect how people, you know, acquire knowledge in that environment, there’s no doubt about it. ....

You know, the other thing is access. You’ve got this thing is open 24 hours 7 days a week so in terms of accessing their learning whether it’s good or bad some students perhaps prior to the technologies would be in class for a certain time and that’s how they learned interactively with their peers and their faculty in that environment (A03).

**Question 10**

Would you like to add anything about the impact of the CMS at the college?

At the end of each interview each of the advisers was invited to add anything that he or she wanted to add. One of the advisers, from within ITT, talked at length about the difference in the way faculty respond depending on whether they are interacting with other faculty or with support staff at the college. He indicated that the college is probably one of the top five
installations of Blackboard world-wide and it is often called upon to share knowledge of their environment with Blackboard sales and technical staff as well as other institutions who are either running in a similar or smaller environment and need to increase their capacity, or new institutions that require some guidance on setting up an initial environment. He noted:

Our early adoption of the Blackboard Learning Management and Content System and our Product Development Partner status has prompted a couple of articles and many enquiries for advice. The college works closely with Blackboard Development to ensure maximum performance .... Outside of the College, we are a true leader in the eLearning space but when it comes down to internal usage and adoption of My.Seneca in the teaching and learning environment, we have had a struggle. In many ways, none of the external fame and accolades mean anything if we cannot get our own faculty to use the tools that ITT has made available (A01).

He went on to note that ITT was a service department and it was not possible for them to provide the academic presence to encourage faculty to use the tools within the CMS. He noted that none of the academic areas at the college “took on” the initiative to do the workshops and training to support adoption and diffusion of the CMS as a teaching learning tool, so a decision was made for ITT to hire a faculty member.

When a professor joined the My.Seneca team marrying academic advisement from the academic area with technical advisement from ITT, things began to happen and we immediately saw a spike in adoption (A01).

An administrator from one of the academic areas noted:
Well, you know that I think there needs to be a lot of work done to educate faculty about Blackboard and the courses they teach. How can the capabilities of Blackboard better assist you in the teaching and learning process. And I think once we can accomplish that or achieve that then I think we’re really talking. But that’s what, that was their interpretation and this is what, six years ago and we haven’t really moved along the continuum except that now I’m telling them that they have to move along the continuum before signing off on the course, and that’s not fair. So I don’t think we’re that far along in terms of technology but I think that there is, you know, I would like to see for example in my degree program the use of technology to enhance the teaching and learning process and so I have to find ways in which to introduce aspects of technology to the faculty (A05).

Another Adviser noted:

I really think it’s a great tool for students, particularly our part-time students who are only here 3 hours a week... They’re getting lots of access and lots of options I think it’s a great review tool, I think it’s an ability, a way that the students, a lot of the time our students have a real problem meeting in groups, they’re all assigned group work and they can’t get together at the donut shop two hours before class, they can’t get together on a Saturday morning they’ve got family commitments or whatever, and I think that the electronic tool is really great for that, it really can facilitate their group work. I think it’s a, it think it gives the students an avenue for communicating with each other alternative to just plain straight email. And I think that more and more they’ll get used to using it. They’re very electronically
savvy anyway, so I think that it's almost an expectation that courses will include some kind of this now, so we'd really be behind the times if we weren't doing it (A06).

The interviews with the CMS advisers corroborated the findings from the document analysis that the decision to purchase the CMS was primarily made within ITT and that there was only very limited, if any, consultation with faculty and academic administrators. It was therefore not surprising that the advisers who worked within ITT were able to explain how the decision was made and those from the academic areas either said that they did not know or could not remember. The document analysis revealed that the faculty who were consulted as part of the RFP process were solely associated with the Centre for New Technologies for Teaching and Learning, which at the time was part of ITT. It is interesting to note that one of the CMS advisers who was interviewed, was one of the academics who was consulted, yet in the interview the person said that he or she could not remember how the decision was made.

The comments made by the CMS advisers reflect the skepticism that is prevalent at the college about the way in which the decision to purchase the CMS was made. Almost ten years after the college wide CMS was adopted, the CMS advisers all agreed that the college made the right choice, yet, the perspective that the decision was made primarily by ITT and not the academic areas continues to be a barrier to its diffusion. One CMS adviser noted, even though the decision was the right one there has never been a review or an evaluation of the impact that the CMS has had on teaching and learning at the college.

Disappointment was expressed by the advisers, at the way in which the CMS was received at the college. This sentiment was also echoed by the students on the Student Federation
College and by some of the academic chairs in the faculty of Business, who had been consulted when the research was being planned. This correlates with the data from the interviews and the written comments of the surveys that revealed strong opinions that the CMS is underutilized at the college. The advisers said that most of the faculty only use the content tools to post documents, the gradebook and announcements, this was echoed in the statements made by the professors who use the course sites, those that don’t use the CMS, and the students. The view expressed by one of the Advisers that they had not been much change in the ways the CMS was used, over the past six years, has also been my observation. Even though more faculty are using the CMS, the overwhelming majority only use the basic functions. Workshops, focusing on the additional features, which enable collaboration and more interactive uses, are offered regularly at the college, but they are very poorly attended and often have to be cancelled.

The advisers’ perception of the CMS on the way teachers teach was varied. One said that it was convenient for them to use the CMS; others stated that it was a mix of everything ranging from no impact at all to it changing the way that teaching was approached. This fit well with the mixed views expressed by the professors who used the CMS and those who did not use it. The professor’s comment about the CMS enabling increased interaction and communication with the students was echoed by one of the advisers, as was the comments about the CMS having a positive impact on teaching.

When asked about the ways in which the use of the CMS had helped learning or created barriers to learning one adviser spoke at length about the students at the college being more “technologically wired than most”. This was in contrast to the views held by both groups of professors and the students who were interviewed. Some professors stated that the students “liked” technology and therefore wanted it to be used to supplement what was doing in the
classroom but the professors felt that many of the students were not as technologically literate as was often claimed. The students who were interviewed also expressed the opinion that, even though they themselves, felt that their technology skills were “good” they were not sure if the same was true of all of their classmates.

One adviser said that the most beneficial impact on learning was that the use of the CMS had made information more accessible. This fit well with the professors’ (who used it) view that the CMS was a “transport mechanism” but contrasted with the students who expressed the perception, both in the Survey Two and the interviews, that it was not just access to information that helped them learn, but access to information that “guided them” and helped them to be organised and to stay on track. The convenience of using the course site was another aid to learning that was mentioned by all who were interviewed and was a theme identified in the written comments on the surveys.

If the use of the CMS resulted in teaching being “replaced” by technology then that was a barrier to learning in the view of everyone who participated in this study. The advisers also felt that a barrier to learning could result from the course sites not being used “well”. The students and many of the professors also alluded to this but even when asked, no one provided any clear description of what “effective” use of a CMS encompassed.

Summary

At this case study college, with a well defined eLearning plan, a history of almost 10 years of CMS use, a very stable infrastructure and a number of support mechanisms for faculty using the CMS, the majority of faculty use only the basic features available through the CMS. It was interesting to find that the ways in which the CMS was used did not vary based on the
number of years that the professors were using the sites. The number of years that the professors had used the sites did not seem to have an impact on the extent to which the features available within the CMS were used; experience did not reflect sophistication of use. The overwhelmingly positive perception of the students, of the ways in which the use of the CMS helps them learn was surprising. These findings are analysed in Chapter Five
Chapter Five:
Analysis

The research findings presented in Chapter IV are analysed and discussed in this chapter. The chapter is organised into four main sections. In the first section, the analysis is preceded by an introduction which explains the context of the analysis. This is followed by the main focus of this chapter: an analysis of the results of the surveys and interviews as they relate to each of the research questions. The findings of the study that did not initially relate to the research questions but which elucidated important considerations about the efficacy of the use of a CMS in learning, are examined in section three. A brief summary of the analysis concludes the chapter. Chapter VI discusses the conclusions and implications for practice elucidated from this study and makes recommendations for further research.

Introduction

The work of Hamish Coates (2006) on *Student Engagement in Campus Based and Online Education* guided this analysis. The ECAR studies about Undergraduate Students and Information Technology (Kavik et al, 2004; Kavik & Caruso, 2005; Salaway, Katz and Caruso, 2006; Salaway, Caruso & Nelson, 2007) also provided direction as did the literature review, a review of other relevant surveys and my experience as a teacher, instructional designer, researcher and academic e-learning liaison in the college system. At the same time that this study was being planned, Coates published the results of his research that "explored the ways in which campus based students engage with the online and general aspects of their university education" (p. 3). I discussed his study with Dr. Coates and he gave me his permission to adapt his research validated questionnaire in this study. The statements used in Survey Two were adapted from his questionnaire. Coates investigated student engagement rather than learning, but as he noted,
these phenomena are closely linked. He concluded that CMSs “have the capacity to influence the management of academic programmes, teaching practices and the way students engage with key aspects of their university experience” (p. 10). He emphasised the importance of putting students at the centre of conversations of higher education. Following his example, this study aimed to do just that.

The purpose of this study was to determine the efficacy of a course management system in learning. Using a case study approach, the study explored the perceptions of the students and faculty at a large, urban, multiculturally diverse college in Ontario which has a history of CMS use. The reasons for using a CMS in the college’s business programs, the characteristics of the use of the CMS that enhanced learning and those that created barriers to learning and their perceptions about what constitutes the effective use of the CMS were explored. The findings from two surveys of the students and interviews with students, faculty and CMS advisers, as well as information gathered during the document analysis were presented in detail in Chapter IV. In this chapter the data are analysed as they pertain to the research questions. The main focus of this study is the examination of the students’ perspectives, as the aim of the study was to understand the effect of the CMS on their learning. Teaching and learning are inextricably connected; therefore obtaining the faculty’s perspective was an important, but secondary, part of the study. The research questions were:

1. What do students and faculty identify as the purpose of using a CMS within the college’s business program?

2. What are the characteristics of the use of a CMS that enhance learning as perceived by students and faculty?
3. What are the characteristics of the use of a CMS that create barriers to learning as perceived by students and faculty?

4. What comprises effective use of a CMS as perceived by students and faculty?

In 2000, two decisions surrounding the use of a CMS were made by the College. The first decision was to adopt a single College-wide CMS and the second was to purchase Blackboard, which is the CMS currently being used at the College. The overriding reason for choosing the particular CMS was its capacity to be integrated with the College's administrative systems. The adoption and implementation was spearheaded by the Department of Information and Telecommunications. Almost 10 years after it was purchased, despite the agreement of all of the advisers who were interviewed and the faculty who participated in the study that the decision to purchase the CMS was a "good" one at the time, the perception of the e-learning advisers from the academic areas and those of some of the academic administrators who were at the College when the CMS was adopted that the academics were not consulted and did not have much input, has been a barrier to its full integration. This is because within their jurisdiction lies the responsibility for advocating the use of the CMS and overseeing the support mechanisms for students and faculty using the CMS.

The CMS is accessed by way of the College's portal which in a unique arrangement with the CMS vendor is now branded with the College's name. It is through that customizable portal that the students and faculty access the course sites and a host of other modules with pertinent college information. The overwhelming majority of students, who participated in this study, just over 98%, perceived that the CMS was an integral part of their college education, over 90% of them said that they preferred taking courses that used the CMS. A course site is created for every
course offered at the College, and it is the individual professor’s choice about whether or not to make those sites available for student use. The CMS has a substantial adoption rate; currently almost 75% of the professors at the College and in the school of business, use the CMS, to some degree. Based on the history and high adoption rate of the CMS, the college is viewed as a leader in the use of the CMS. Undoubtedly from a technical perspective, this is so. As one CMS adviser astutely stated, for the past 10 years the focus has been on technical and administrative aspects of its use. Along with a stable infrastructure, pedagogical institutional support for students and faculty so that the CMS is used wisely and well is critical to its seamless integration into the campus based experience.

The “digital divide” in and out of the classroom, is a consideration of any research that explores the use of a technology, such as the CMS, on learning. This is made more complex by the changing demographics of the faculty and students. The students on college campuses bring with them expectations and understandings of technology that sometimes are very different from those of students in the not-too-distant past. For many of the younger students their use of technology is a defining part of their academic and social lives, and it is assumed in the literature that they bring with them a new set of beliefs, expectations, and abilities that are both exciting and challenging (Oblinger & Oblinger, 2005, Tapscott, 1998). This study revealed that it is not just the younger learners, almost all learners regardless of age have an expectation that Internet based technologies will be commonplace in their learning environment.

The students in this study were all in the first year of their three year diploma programs, they ranged in age from 17 to over 41; about 60% of them were female. The mean age of the students who participated in the surveys was 22.7 and the median was 20. Regardless of age, computer and Internet usage is high and very similar among them. They are confident of their
ability to use the Internet to help them learn and almost 90% of them have high speed Internet access at home and almost all of them (97.4%) reported that they had regular access to a computer. The findings of this study indicated that the perception of the use of the CMS in learning was remarkably and surprisingly similar across age and gender. This is consistent with the findings of the ECAR Study of Undergraduate Students and Information Technology, 2007.

A key aspect of the study's report was that for the first time in the three years of the study, "whether respondents were male or female, live on or off campus, are full or part time, are seniors or freshmen, are young or old, or are fine arts or engineering majors, they were consistent in their overall ratings of whether they experienced course management systems as positive or negative" (p. 69).

Through the interviews and in response to questions on the study the students indicated that they check the course sites frequently, even when they know that the sites are not regularly updated. This suggests that the CMS has become more a utility than an option. As one student said during the interviews:

Everyday I check [the course sites] even though I know that there is nothing [new] there. We see it as part of our responsibility to keep up with it, but the teachers, they just do not use it enough (S19).

This further indicates that the students perceive a higher level of integration than faculty do.

The qualitative and quantitative findings from the surveys and interviews with the students verified and supported each other, this was particularly important for the purposes of this research which was to gain a deeper understanding of the effect of the use of a CMS on learning in campus based courses. As revealed in Chapter Four, even though there were several
similarities, there were also some fundamental differences between the perceptions of the students and the professors about the characteristics of the use of the CMS which are perceived to enhance learning and those which are perceived to create barriers to learning. These findings are discussed in the following section of this chapter.

The Research Questions

Question 1

What do faculty and students identify as the main purpose of using a CMS within a college business program?

Students.

The students generally agreed that the main reason for using the CMS was to access and download the documents that the professors had posted there. Access to grades was also highly valued, but as one student noted:

We can get the grades later if we had to but we really need the materials on the course sites, if we don’t have the materials we don’t know what we have to learn (S1).

They noted that the CMS was particularly useful if they had to miss a class and having online access to grades motivated them to study harder to get better grades. The high value placed on having access to information on the course sites was also supported by the comments on the open ended question on Survey Two. Other reasons for using the information posted on the CMS, in no particular order, included to:

- see what they had “missed”, if they did not attend class
- "know what's going on in class"
- access the assignments wherever and whenever they had access to the Internet
- prepare for class
- make lecture notes more meaningful
- "help them to understand" what was going on in class
- review and compare the notes (usually PowerPoint slides) posted online with their own notes
- have the choice of printing or not printing documents

The reasons discussed during the interviews verified those revealed by the survey findings. Over 85% of the respondents said that they used online materials to make lectures more meaningful, extra resources and links helped them to review concepts taught in class, and it was easy to catch up on missed classes when there was information posted on the course sites.

Almost 95% (n=349) of these students perceived that having access to grades on the CMS encouraged them to work harder to get better grades. The students said that when the professors used the gradebook feature they "knew what was going on." They said that having access to their grades online motivated them. "The grades let you know if you should be putting more effort into your studies. If you should be doing more work. If you do not know how you are doing you do not know if you are lagging behind. If it is on the gradebook it helps you to keep track" (S7). One of them noted that if they had to take a quiz on the CMS, they could receive instant feedback if the gradebook was used, and that was the ideal situation.
A few students spoke about using the CMS as a way to send email to professors and to group members. They could easily locate the email addresses of their classmates and professors on the course sites. Two of the students briefly mentioned that it was a way for them to become familiar with “technology” and this was also referred to in the open ended questions on the surveys.

The survey results, as depicted in Table 18 indicated that the students had used a wide variety of functions within the course sites however, during the interviews, even with probing, there was very little discussion about any of the tools or features other than lecture notes, assignments, due dates, grades and the discussion board. While the survey results revealed that over 75% of the respondents believed that announcements, gradebook, course outlines, weekly schedules, assignments, lecture notes, copies of PowerPoint slides and review notes helped them to learn to a great extent or quite a bit; Discussion boards, professor information, classroom policies, library reading lists, course blogs and journals and wikis, podcasts and the virtual classroom had less of an impact. More than half of the respondents reported that the use of these features had very little or no impact on their learning. None of the students who were interviewed, made any reference to a number of features that the survey findings revealed that the students had used, including the voice tools, blogs, wikis, podcasts, virtual classroom or the digital drop box. This comment from one student summed up what the students repeatedly stated during the interviews:

They [the professors] post assignments, marks, announcements, grades. No one used any of the other tools. [They posted] course documents, course information, just a few notes (S12).
Based on the students' descriptions of the very basic purposes for which the professors used CMS, it is not surprising that access to information was their main purpose for using the sites. These actual uses of the CMS that had been experienced by the students who were interviewed, was in contrast to the wide variety of reasons mentioned by the professors during their interviews.

Faculty.

The purposes for which the sites were used varied widely among the professors who were interviewed. As detailed in Chapter Four, individual professors who were using the CMS, identified a variety of reasons for using the sites, but as noted in Table 27 the most consistent use was for posting course information, especially course outlines, assignments, due dates and some lecture notes mostly in the form of PowerPoint presentations, grades and announcements. One professor stated that the CMS was used “mainly for content, yeah mainly content. Mainly as a transport mechanism” (F17), and another noted, “first it is a place to deposit materials.” All of the professors spoke in great length about the documents that they posted on the sites, many described their use of announcements and the gradebook and some discussed using email and the discussion boards, and just a few the digital drop box the audio functions, online testing and blogs.

The number one reason for posting documents on the course sites was that the professors felt that that was an easy and convenient way to make information such as: the course outline, addendum, lecture notes, assignments, learning objects and extra resources available to the students. The professors used the CMS because they felt that the students “liked it” when they did so. Some said that they posted information so that they did not have to print “everything”. If all of the information planned for a lesson could was not covered in class, due to time
constraints, or if a class had to be cancelled then the CMS was used to give the students access to the information “missed” or “not discussed”.

The professors indicated that their intentions for using announcements were to welcome students to class, to reduce the amount of email sent to students, to broadcast messages to students, to send out reminders about home-work and assignment due dates, to give the students a “heads-up” about what was planned for class time and to help the students navigate the information on the sites. One professor noted “I think they have got busy lives, and I think that they are often working and going to school and they have family responsibilities and are bombarded with information, so I try to help them navigate the course information in the class. So I use the announcements page every week and give them sort of a heads up (F08).”

Some professors used the gradebook because it was an “easy” way for them to tabulate the marks and they felt that when all the marks were recorded in one place, easily accessible by the students, it reduced the discussions that they had with students disputing marks. The use of the gradebook also allowed the students to check their grades to make sure that the professors had recorded them accurately. They found that there were fewer disagreements about mistakes and the students were more aware of their standing in the course at all times. Another reason for giving the students access to grades was because some professors felt that it made the students less “stressed” when they could constantly check their grades.

Discussion boards were used to extend the discussion in the face-to-face classroom so that students could “learn from each other” and for students doing group work to share information. Some of the discussion forums were used as a way to provide feedback to students and others were use for general questions and answers. One professor’s purpose for using the
CMS based discussions was so that she could get a sense of how well the students understood the information that was discussed in class. Two teachers of English courses said that they used the discussion boards as a place for the students to write freely, to let their ideas flow. Blogs were used for students to reflect individually on course materials. The blogs were used as a private forum for interaction between student and professor, while the discussions were used as a public forum between the professors and the students and among the students.

There was very limited use of the testing and survey functions, although one professor did describe the test pools as a “wonderful thing” and said that his reason for using them was that it allowed him to randomize the questions, so that each student “gets something different.” Another used surveys to get feedback from the students as well as to gather information from them.

There were a number of purposes for using the digital drop-box. One professor said that his purpose for using it was that it was a way to be “fair.” Having students submit assignments via the drop box, which were date and time stamped, allowed each student to submit the assignment on time whether or not they had a class or were able to attend class. Using the assignment features on the course sites allowed for the easy sharing of assignments, between the student and the professor; especially those assignments which need to be edited and revised. It was also used as a way for the students to submit their assignments electronically so that they could be checked for academic honesty.

In addition to the reasons for using the CMS that were viewed by the professors as being beneficial to the students, those respondents who were using the course sites also stated that one of their reasons for using the CMS was that having all the course information in one place,
helped them, the professors, to manage their own information and to keep track of what they had "covered" as well as what they had not done in class, "[When I use the CMS] I see what we covered and what is next and it just keeps track for myself and for them (F03)." They said that they used the CMS because "it seemed logical, it was central, very easy and practical to use.” During the interviews a substantial amount of time was spent discussing the professors’ challenges with organizing and keeping track all of the information that was available for each course. The implication of this finding will be discussed later in the chapter.

While the seventeen professors who were using the sites were very positive about the use of the sites and referred to many possible purposes for using the CMS, the three who were not using the sites all agreed that the reason that they were not using the sites was because they felt that if they did so the students would not come to class. They said that they were very satisfied with the tools that they used to teach in the face-to-face classroom and saw no reasons for changing or adding to their practices.

The opinion of the CMS advisers that, despite all of the features available the CMS was being used very minimally, was confirmed by the purposes described by the students and faculty for using the course sites

Summary.

The students and professors who participated in this study both affirmed that the main purpose for using the CMS was for the delivery of and access to information. The findings demonstrated that for all the features available through the CMS, and discussed during the interviews, there are only three features that are consistently used, course documents, the gradebook and announcements; and to a lesser extent - email and the discussion board. There
was very little mention of the communication features (even though email usage at the college is high) and a number of the features were never mentioned at all in the discussions. Announcements were perceived by the students as a way for the professors to provide them with information; they were not viewed as a communication feature of the CMS.

The professors who participated in this study, even though aware of the other functionality available within the CMS, generally used only the basic features of the CMS to give students access to course documents, for the convenience and transparency of the online gradebook and to broadcast information to the class. As Malikowski et al. (2007) observed, the CMS features for transmitting information to students are used often and those for creating interactive learning activities are used much less. This observation was confirmed by the findings of this case study.

**Question 2**

What characteristics of the use of a CMS enhance learning as perceived by students and faculty?

**Students.**

It was surprising to find that even though the students who participated in this study had only experienced very basic uses of the CMS in their courses, they had such a positive perception of the impact of the use of the CMS on learning. This was corroborated by the survey findings where there was a much stronger majority opinion of agreement, expressed in the responses to statements that addressed the themes identified in the literature, about the characteristics of the use of the CMS that affect learning, than was expected.
The findings from the surveys revealed that almost all of the respondents, 98.5% (n=352), said that it was convenient to have all of the important information available on the CMS and over 70% of these respondents strongly agreed with this perception. Over 90% of the students felt that access to online course information made it easier for them to study, helped them to keep track of assignments and complete tests and assignments and be more engaged in their courses and keep track of what they needed to do to be successful. They also believed that having access to grades encouraged them to work harder to get better grades. When asked to indicate which of the choices from a list were beneficial to learning 78.9% of them chose access to course information, 76.6% chose convenience, 43.1% stated that it helped them to manage their time, and just 36.4% said that it helped them to communicate with professors and classmates. Over 50% of the student respondents believed that the use of the course sites “improved” their learning. The written comments on Surveys supported those findings, and another theme emerged. Over half of the comments about the characteristics of the use of the course sites that were beneficial to learning revealed that the students felt that the information posted on the course sites helped the students to be organised and stay on track. Very few students commented about the use of the course sites facilitating communication.

While some students could not decide which was the most important use of the sites access to grades or access to information they all agreed that it was the way in which the use of the course sites helped them to be organised and to keep track with what was going on in the course and what they needed to do to be successful, that was of utmost importance in facilitating learning. It was also the strongest theme that emerged from the written comments on the survey. None of the studies which were used to guide the questions on the surveys had identified “organisation” or “helping to keep track” as characteristics of the use of the CMS that were
specifically beneficial to learning, so they were not included in the list of options, on the survey questionnaire, from which the students could choose. Repeatedly the students also said that having online access to their grades motivated them to do better. When the grade book feature of the course sites was used, it was a fast and easy way for the students to keep track of their grades. They said that seeing the grades online encouraged them to put more effort into their studies.

The discussions with the students revealed that the CMS acted as the “guide light” for their classes as it enabled them to know where they “were standing in each class in terms of the materials being taught.” A number of them indicated that it was the “bridge” between the teachers and them the students, enabling the students to look at information outside of the face-to-face class. This comment from one of the students captured the sentiment that was strongly expressed during all of the interviews:

Without [the CMS] it is the same as if you are driving blind (S14).

*Faculty.*

Without hesitation, all the professors who used the course sites said that they felt that the course sites facilitated learning. They indicated that the characteristics of the use of the CMS that were beneficial to learning, included (in no particular order):

- helping the students to be prepared for class
- another way to give feedback
- having the material presented in class and available online was a way to “reinforce” what “had to be learned”
- appealing to visual as well as auditory learners
• giving the students control of their learning
• making learning flexible
• reviewing for tests
• facilitating communication

When asked about the ways in which the CMS had a positive impact on learning, only one professor referred to the use of the discussion board in the response to the question.

The professors spoke about the course sites being convenient for the students to have their grades and information in one place, and indicated that this helped them to be organised and “keep track of the material.” Two professors spoke about it “being a huge advantage to communication.” They emphasised that having online access to information was of utmost importance, it was a place for students to find information. The professors felt that because the students “liked” the CMS, it had a positive impact on learning.

Summary.

Increased access to information was the characteristic of the use of the CMS that the professors felt was most beneficial to learning. The comments from the professors indicated that the more information available to the students the “more” that they would learn. This perception was reflected in this comment, made by one professor about the information that was posted on the course sites: “Well you know, I think it’s well, adding on learning” (F11). This was in contrast to the perception of the students who strongly affirmed that the characteristic of the use of the CMS that was the most beneficial to learning was more than just the “access” to information that the CMS afforded that they valued. The students did not find it helpful if in their words, “there was too much information.” What was most valuable was if the information helped
them to stay on track and be organised and know what was going on in class. The course notes helped them learn if they summarized what was done in class, not if what was posted was just read or repeated verbatim in class. If they could use the information posted on the sites to guide them to be successful, it was that, that facilitated their learning and was the greatest benefit of the use of the course sites.

**Question 3**

What characteristics of the use of a CMS impede or provide a barrier to learning as perceived by students and faculty?

**Students.**

The students began their responses to the question which asked about the drawbacks to using the sites, by saying that there were none. They were quick to say, as one of responses illustrates: “No, there is no negative impact to the use of My.Seneca, there is nothing that is not good.” It was only after repeating this question that the interview discussions focused on the ways in which information was posted on the sites. They spoke at length about the frustrations that result when professors do not use the sites. I was surprised by how strongly the students felt that the use of the sites helped them to learn and therefore when the CMS was not used it was “more difficult” for them to learn.

Over 75% of the written comments on Survey Two that addressed ways in which the use of the CMS would be a barrier to learning referred to either the professors not using the sites or not using the sites in the ways in which the students perceived that they should be used. This was corroborated by the findings of the interviews with the students. Lack of use of the sites was, in the students’ views, a barrier to learning. Every student who was interviewed felt that it should
be “mandatory” for the professors to use the sites and this was also demonstrated by the comments on Survey Two. The students believed that they did “better” in the courses which utilized the CMS. Over and over the comments on the surveys indicated that the students felt that: “TEACHERS SHOULD USE IT MORE!!!” [emphasis as written on the survey open ended question].

At the same time the students who were interviewed were resolute that if the use of the CMS resulted in less contact with the teacher, then that would be a barrier to their learning. A significant portion of the discussions during the interviews revolved around how important the time in the face-to-face classroom was to the students and how they wanted to go to class. One student said “We need the energy from the teacher” and another noted that “a drawback would be if they posted everything on the course site so that you did not have to go to class (S6)”.

This was a key theme that emerged, from the findings of the survey and interviews, as a characteristic of the use of the CMS that would be a barrier to learning and the implications of this will be discussed in Chapter Six.

A few students mentioned that sometimes the information posted on the site was all in one section, and not organised properly resulting it in it being difficult to find documents that the professors said that they had posted on the sites. There was very little reference to technical issues as a barrier to learning. Less than 10% of the comments on Survey Two made reference to this and the only technical issue mentioned during the interviews was that sometimes the course sites took a long time to load. In summary, the barriers to learning resulting from the use of the CMS were:

- failure to use the sites by faculty
• less contact with the professor

• a professor does not answer the question and instead sends them to look for the information on the site; they see this as the professor “depending” on the site too much

• when the material on the sites is not properly “organised”

• when the professors do not know how to use the sites well

• if information on the sites is difficult to access

• if the teachers put something on the sites and there is no explanation in-class

Faculty.

The professors who used the sites believed that “when properly used [the CMS] does not create barriers to learning…. [The CMS] is a tool, it can be used badly or well” (F02). They acknowledged that it would be a barrier if there was no integration between what was posted on the course sites and what went on in the classroom. Some were concerned that if the students did not attend class because they felt that they could get all of the information through the CMS, then that would be a barrier to learning. Similar to the students, they stressed the importance of the face-to-face classroom as the primary “place” for learning to happen. In the professors’ views characteristics of the use of the CMS that could result in barriers to learning included if:

• the students do not know how to navigate the system

• the professor does not know how to use the CMS effectively

• the students did not attend class
Summary.

The professors agreed with the students that if the use of the CMS replaced “teaching”, which was equated with the students being able to get all the information without attending class, it would be a barrier to learning. They were quite concerned about the students not attending class if material was posted online. The feeling among the professors that the benefits that resulted from the use of the CMS far outweighed the barriers that may result from its use was verified and supported by the surveys of and interviews with the students. One theme that emerged from the study was that many students found that “the poor use (under use or overuse or inappropriate use) of technology by faculty detracts from the learning experience.

Question 4

What are the perceptions of students and faculty about the effective use of a CMS?

Students.

For effective use of the CMS, from the perception of the students, organisation is key. “First they should organise the material that they post on [the CMS], use folders, all assignments in the assignments folder, all lectures in the lectures folder. They need to organise the materials, don’t put all the information in one folder so that I cannot find it” (S4). The students felt that the sites should be updated regularly; they should have summaries of the lectures and examples to guide them when they were completing assignments. In addition, they felt quite strongly that announcements should be used to keep them informed of due dates and deadlines and what they need to do to be prepared for class.

Two students talked at length about the professors in their program, whose excuse for not using the CMS was that the courses in that program were what they referred to as “skills based”
as the assignments were all projects. The students explained that, in their opinion, the professors did not understand that they should still use the sites to post copies of the assignments, the due dates, the course outlines and examples of what the completed projects should model. They showed great insight into how the sites could be used to help them stay on track and be successful.

Almost all of the discussions with the students, about effective use referred to the ways in which the information was posted on the sites, the amount of information and whether or not the professors should post all of the information at once, or add it as the semester progressed. The students were in general agreement that:

"I prefer them to add information slowly; if they put everything on all at once it is confusing. Some of them, they write week 13 and week 14, but you really don't know which week it is - they need to use real dates" (S13).

The students indicated that it was an ineffective use of the CMS, to post information and then not explain or discuss that information in the class. They discussed their frustration when they asked the professor a question and were sent to the site to find the answer. They spoke about the importance of having the information posted into the sites being integrated with what is done in the classroom. As one student so astutely noted as he referred to one course where the CMS was only used for the gradebook feature:

Just grades is not enough, summaries of what was done in class, things we need to look back on and remember....there should not be too much information, it should be secondary not the main source of information, a backup (S8).
There was a very mixed reaction from the students about the effective use of the discussion board, with most of them agreeing that they did not find the online discussions very beneficial to learning. One of them spoke about it being easier for shy students or students for whom English is not the first language to discuss online. However, after self identifying as a student whose first language was not English, this student said she did not find that to be so. The other students in the focus group agreed. S10 described the effective use of the discussion board as:

I think a really good thing would be a question and answer discussion board for each course. Some people have questions and it could be a random question, they could put it there and not only the professor could answer it, but someone from class could answer, not just the teacher.

The students affirmed that because of their very limited experience with the use of the sites, based on the professors’ use of the basic tools; they did not really have many suggestions concerning effective use. As they noted, they did not know what it is to use it effectively, because they did not know all the “things” the CMS can do. As one written comment on the survey stated:

“This is my second program at Seneca and I have used My.Seneca consistently throughout [the first program]. However, a lot of the functions/features the site offers, we do not get a chance to explore and use. Teachers should make it widely available for all the students.... Some of the features I have never used or heard of. Why put it there if were not going to use it?”


Faculty.

Quite a few of the professors seemed to be in general agreement that they did not have a strong understanding of principles for effectively integrating the CMS into their instruction, and this limited how effectively they used it to enhance learning. One professor noted that there should be “some consistency with the use of Blackboard because I have heard from students that one teacher uses Blackboard, three don’t, one uses grade book, one doesn’t….. I just think that there should be more consistency, but other than that it is a great tool for students and for teachers (SI5).

Not much was discovered about the effective use of the CMS, from the discussions with the faculty.

Summary.

The mixed reaction to the effective use of the discussion board which the students discussed was shared by the professors. Only two of the professors spoke enthusiastically about their use of the discussion boards and discussed its value. A few of the professors spoke about putting all of the course information in one area of the course and described this as “being easy for the students”, but this was not the opinion of the students who were emphatic that this made it very difficult to find information. The students really liked having different areas of the course sites with different aspects of the course information. They found it very effective when the information was structured and valued the use of the CMS enabling them to have just one place to go to find the information for all of their courses.
Summary

The students who participated in this study had a very clear perspective of the characteristics of the use of the CMS that enhanced learning and those that created barriers to learning in the context of their learning experiences in the business programs at this case study college. On the other hand, the faculty seemed, for the most part, to be using the CMS because the tool was available and its use was encouraged by colleagues and administrators. While the students answered the questions with conviction, the answers provided by the faculty were tempered with speculation as their uses of the CMS in the classroom had never been evaluated by them or the school of business. Finally, they revealed different perceptions on the part of students and faculty.

The data garnered from the perceptions expressed by the students and faculty who participated in this study provided valuable insight into the answers of the research questions. The findings clearly illustrated the efficacy of the CMS in learning and the characteristics of its use that enhanced learning and those that created barriers to learning. They also revealed that accessing and managing information is paramount to learning in the perceptions of both students and faculty.

The Dog That Did Not Bark in the Night

While discussing the research findings, I was reminded of Sir Arthur Conan Doyle’s Sherlock Holmes short story, *The Silver Blaze* where the crime was solved because a “dog did not bark in the night” (Doyle, 2004). When analysing the research findings of a case study, it is sometimes as important to reflect on and analyse what was not said as it is to reflect on and analyse what was said. It was in thinking about what was not said by the participants in the study that some of the key elements of the efficacy of a CMS were revealed.
Coates et al. (2005), sum up quite nicely much of what is written about the use of course management systems for learning. They posit that CMSs:

have the capacity to influence how students engage with their study and to change collaboration, communication, and access to learning materials. [CMS] enrich student learning by offering access to a greater range of interactive resources, making course contents more cognitively accessible, providing automated and adaptive forms of assessment and developing students’ technology literacy. Asynchronous online tools allow students to interact with learning materials, their peers and the entire university in ways not bounded by time or place. (p. 66)

This study was grounded in the Principles of Good Undergraduate Education which emphasises that good practice encourages student-faculty contact, encourages co-operation among students, encourages active learning, gives prompt feedback, emphasises time on task, communicates high expectations, and respects diverse talents and ways of learning (Chickering & Gamson, 1985).

While the results of this study clearly illustrated that the use of the CMS had a very positive affect on engagement and access to information, and was seen by some of the participants to help the students and the faculty to develop technology literacy, much of the descriptions of the potential of the CMS in the literature review were not revealed in the study. In analysing the data, I realized that at this case study college, the use of the CMS did not offer access to a greater range of interactive resources, it did not provide for automated and adaptive forms of assessment. The students’ comments did not illustrate descriptions of active learning experiences. For the most part, the professors did not utilize the features that facilitate prompt feedback, except for minimal use of the gradebook, and there was not much mention of the communication of high expectations and respect for diverse talents and ways of learning enabled by the use of the CMS.
Yet, almost all of students who responded to the survey, 98% (n=357), felt that the use of the CMS was an integral aspect of their college experience, over 90% of the students preferred taking courses that used the CMS and the vast majority of them were satisfied with their experience with the CMS and thought that the professors used the course sites in ways that improved their overall teaching. Ninety four percent were very satisfied with their experienced use the CMS course sites. Even though the students preferred taking courses that used the CMS and felt that it should be mandatory for all of the professors at the college to use it, they did not want to spend more time learning online and they did not want the use of the CMS to result in less time spent with the face-to-face classroom.

**Information and the CMS**

As I reviewed the findings of the study, again reflecting on the literature about the use of information and communication technology in general and the CMS in particular and on what I did not find in this study, I realized that the efficacy of the CMS in learning was about information access and organisation. Over and over again the students who were interviewed talked about the use of the course sites helping them to get a sense of what was being done in the course, and that the course sites helped them to organise how and what they did. The professors’ comments corroborated those of the students about the invaluable role the CMS played in helping them, the professors, to manage, organise and keep track of the important information for each course.
**Students.**

I think it helps me to learn because it keeps me on track. You can go back to notes and check say Chapter 1. It helps me to learn but it is not as though if it was not there I would not be able to learn, it is more of a guide (S10).

It is more of an organisational thing, I am not sure if it really helps you learn, but it keeps you organised..... I use it everyday, even when I am not at school, it keeps me on task, what I have to do, it tells you what is coming up, it gives you a heads up as well, so it really keeps me on task (S13).

Access to course materials [is of utmost importance] if we don’t have the materials we don’t know what we need to learn (S1).

My.Seneca makes it easier for me to access information about my courses online, and it helps me to keep up. Although, I wish more of our professors would take the time to be concerned with our progress in and out of school. Meaning that they should use My.Seneca to pass on information that we would be doing next class, lecture notes, project details that we could not pick up in class, etc. I understand that it takes a lot of time and that they do not have to do that, but we are students struggling throughout the year to progress in the course. (Comment on Survey Two)

**Faculty.**

Yeah, I think it’s actually easier for me, I mean I love it as a course management system because I find it helps organize me and the students, it helps provide an organisational structure, that’s I think easy to see, evident, and I think that, so it’s
given me that structure that's sort of easy to remember to fall back on and remember, and I think it's allowed me to do more interactive things in class (F08).

I think it’s, it’s more of an information repository (F17).

It is like keeping track of the material, organizing the material. So, in terms on organizing the material that's great, and it helps me even more than it helps students to organise things and I see what we covered and what is next and it just keeps track for myself and for them (F03).

I guess I like Blackboard for the way it can centralize a lot things I need to be doing, I have my information there, like for me, information management is much more difficult these days than time management. I mean that’s the issue. There’s just information everywhere and I have it everywhere, and I never know where I can find what I need, and so Blackboard has been helpful in helping me to organise and manage that information (F16).

I don’t know how they manage all of their information, so maybe it’s a better way of managing data (F19)

It was especially interesting that one of professors who did not use the course sites, when asked at the end of the interview if there was anything she wanted to add about the use of the CMS and learning said in reference to the way in which the CMS enables access to information and helps the students to be stay on track, said:

I find it useful. A lot of my students come into the program and they’re late, you know, two weeks late, and I’ll say to them, you know, it’s pretty late, you can’t
just crash a teacher's course in week three or week four and go in, and then I will ask the teacher if they use Blackboard and I will say to the student, okay, you're responsible for making sure you know that material before you walk into your first class, so I find it can be useful that way. Also for students who are special needs, I can see that for them having the reinforcement of Blackboard is very helpful (F09).

Few researchers have focused on the ways in which information can be a crucial resource in educational achievement and attainment. Certain conditions facilitate the management and organisation of this information, in many instances, this is critical for “successful” learning. Not being able to manage and organise and access information would result in students being “lost” and it may discourage them from successfully completing their courses. If they are in “control” of the information they would feel more confident about successfully completing their courses. The use of the CMS helped the students who participated in this study to learn by enabling them to easily access, manage and organise that information. The information management it afforded was also invaluable to the professors who used the CMS.

It is often noted in the literature, in a negative context, that professors put a lot of value on the CMS supporting traditional tasks, such as distributing their required readings. Even though the cynics on campus often note that this is “wasted effort”, this is in fact a critical adaptation to a fundamental change in how students prefer to get access to course materials (Dutton et al., 2004, Lane, 2008; Awidi, 2008). The implication of this finding will be discussed in Chapter Six.
Communication and Collaboration and the Use of the CMS

The survey findings detailed in Chapter Four, illustrate that the features of the CMS that received the lowest, but not negative, rating in this study were the ones that facilitated communication and collaboration. While just over 75% of the students agreed that the use of the CMS helped them to communicate with their classmates outside of class, almost 10% of the respondents said that this was not used by them. Over 30% of them said that they did not use the CMS to have helpful online discussions with their classmates and just over half of the respondents agreed that online discussions with other students were helpful. Over half of the students found that the online discussions with professors were not helpful and 25% of them said that they (the teachers) did not use them. This perception was supported by findings from the interviews with the students; there were very mixed reactions to the discussion boards. The students said that they would only participate in the discussions if they were graded and some students indicated that found discussions that were just questions and answers “better” than those that were really “discussions”. They did not like posting and then having to wait for a response. All the students stressed that even though there might be some students who preferred to use the online discussions, they much preferred the ones that happened in class. This disillusionment with the discussion board, when compared with in class discussions, was also a finding of the interviews with the professors.

Classroom Interactions With the CMS as a Support

These students showed a very strong preference for face-to-face interactions with their professors and fellow students. They described the convenience of having information on the CMS so that they easily “catch up” if they missed a class, because “It is not like in high school where you have friends in class. It is very difficult to make friends [at college] as the students are
many different ages and backgrounds, so it is not easy to get notes from a classmate' (S4).

However, their emphatic message was that campus based learning was a fundamental aspect of their education. They affirmed that even though it was useful to communicate with professors through email, “First I always send an email to my professor, to make an appointment, and then I go to see them. I prefer to see my professor face-to-face, I think it is a better connection” (S5).

When asked about whether or not they would attend class if the lecture notes were available online, they were all emphatic that class attendance was not affected by the availability of notes. “Yes, absolutely, I would go still go to class. The purpose for coming here to college is for the interaction and contact with the professor in class, if not I would just do online classes” (S1).

One student indicated that he was doing a fully online course and that he was doing well in that class, but he repeated several times that he preferred taking campus based classes. Their message was that even though they prefer taking courses that use the CMS and are of the opinion that the use of the course sites should be mandatory; “campus based” classroom learning, face-to-face interaction with their professors and classmates, was a fundamental element of their education. They stressed the importance of the social interactions with professors and classmates that occur on campus. The greatest barrier to learning from the use of the CMS would be if it resulted in less time with their professors. It is clearly a finding of this study that the CMS has a place, and that place is that not as replacement for, but as a support to, bricks and mortar education.

Technology and Learning: The Efficacy of a CMS in Learning

Educational technology presents many challenges to the academy. Policy makers in higher education face important and expensive decisions about the role of technology in their operations. But, the most important place to focus must be the heart of the scholarly endeavour, enabling learning. It is evident from the findings of this study that the benefits of these systems
in terms of flexibility and accessibility and in the ways they help students (and faculty) manage and organise information is integral to learning and should not be understated. However, many of the features that are part of the CMS are not utilized. These findings illustrate that just having access to tools does not facilitate their use.

The fifth edition of the McGraw Hill Ryerson Technology and Student Success in Canada (2007) report concluded that one of the things that has to occur before technology becomes truly integrated into the curriculum is that there has to be evidence that its use can help teachers achieve important teaching and learning objectives. This supports the views of Butler and Sellbom (2002) whose study was conducted at Ball State University in Indiana and, a similar study conducted at Illinois State by Chizmar & Williams (2001), which both concluded that the attitude of faculty has a strong influence over how technology is integrated. Those studies proposed that the skepticism that faculty had regarding the overall effect that technology integration had on student learning was a barrier to its effective use since faculty cannot find convincing data that technology matters to learning. The findings of this study are strongly indicative that it is the perception of the students that there a number of characteristics of its use that have a very positive affect on learning.

This study revealed, the CMS, like a variety of other technologies, are no longer considered as desirable adjuncts to education, instead they are regarded as essential elements of the learning landscape. In reflecting on and discussing the connections between the latest research on learning, the findings of this study, and their implications, it was suggested that I consider Mark Hopkins and the log. This aphorism, coined by James Garfield, a Williams College alumnus in 1871, who when after listening to an impassioned plea from a Williams College professor for more and better resources, proclaimed: “The ideal college is Mark Hopkins
at one end of a log and a student on the other” continues to capture the essence of education today (Mark Hopkins, was the President of Williams College). Undoubtedly, the crucial medium was not the log, but the interactions between the teacher and the student. The key elements of effective learning are the connections and interactions between faculty and students, about a subject, which takes place in a setting, a context. Learning is situated in and impacted by the context.

The findings of this study indicate that there are a variety of purposes for using a CMS, and that when used effectively, the CMS is perceived by the students and faculty in this case study research to have a positive effect on learning. As stated in the introduction, the ultimate goal of the research was to address whether, and under what conditions, course management systems, facilitate learning and or create barriers to learning. The aim of the findings of this study is to enable the Mark Hopkins of the 21st century to take advantage of the resources available through the use of the CMS to facilitate the interactions between the teacher and the students, to enhance learning. In the next chapter the conclusions and implications of this study will be discussed and a model for the effective use of a CMS will be described.
Chapter Six:  
Conclusions, Implications, and a Model

This final chapter highlights the contributions of this study to understanding the efficacy of a course management system (CMS) in student learning, and the conclusions and implications of the perceptions of students and faculty about the impact of the use of a CMS on campus-based education. The chapter begins by closing the loop between plans and results. This is followed by a discussion of the conclusions of the study and some of the implications for practice and a model for the effective use of a CMS as a support for campus based courses. The findings of this study offer a set of research based principles that can inform debate and sustain action regarding the conditions of the use of a CMS that facilitate learning and those that are perceived to create barriers to learning. An extensive search of the literature did not reveal any other case study research, grounded in a theoretical framework of learning, in which the student and faculty perception of the use of the CMS and its effect on learning are studied together.

Closing the Loop

Reflecting assertions made in the literature, the college’s first eLearning Strategic plan (Seneca, 2001) stated that one of the goals of technology enhanced learning at the college was to enable the college to “lead by innovation by creating a dynamic, state-of-the-art learning and working environment.” The plan noted that the Blackboard system had been adopted to enable faculty to utilize a variety of eLearning options in course delivery and communication. It went on to state that the system would be used to support all courses, full time and part time. The 2006-2009 eLearning Plan makes reference to a “net generation” of learners and states that “they view technology in learning, if indeed they notice its presence at all, as a tool with which to immediately connect with others and for convenience and control of their learning activities.”
The objectives for the use of technology at the college included: drawing students into deeper learning experiences; broadening the ways that students can interact with faculty, support systems and other students and the ways in which they become engaged with subject material and learning activities (Seneca College, 2006).

It was the disconnect between the goals in the eLearning plan, the descriptions of the potential of education technology to impact learning in the literature, and my own perceptions of the way in which the CMS was being used at the college that prompted me to reflect on and seek a deeper understanding about the efficacy of a CMS in learning. As noted in the introduction, one of the driving forces behind this study was the insistence of the Student Federation Council that they wanted more professors to use the CMS in their campus based courses, and those faculty who were using it to use it more. Despite this prompting and a strong push by the administrators for faculty to use the CMS, there was much skepticism on campus about the extent to which this would facilitate learning. The question: “Is the use of the CMS worth the time and effort it takes to do so?” dominated the discussions at workshops and faculty meetings.

With this in mind, this research explored the efficacy of a CMS in learning. A number of questions were posed in the introduction chapter and these, along with the review of the literature guided the formulation of the research questions. Some of the questions were: Do the students perceive that these tools add value to learning? How are faculty and students using the CMS? Which features and in what ways? Is it changing how people teach and learn? In what ways do these tools have a positive impact on learning and what are the constraints to learning? Are these systems being used solely to augment conventional practices, as some of the recent literature contends (Lane, 2008) or have they added new dimensions to the ways of teaching and learning?
As detailed in Chapter Two much of what little, theoretically grounded, research I found was aimed at demonstrating and testing whether or not the use of a CMS had an impact on learning, or on the technical, financial and administrative aspects of its use. As Coates, 2006, observed “many books and papers have been written about the higher education market, different models for higher education and the transformative influence of technologies” (p.60). At the same time his suggestion that the studies “are limited in their capacity to advance a broad understanding of how the systems influence student learning” (p. 62), supports my conclusion from the review of the literature. The approach for this study was based on the conceptual framework of seeking to understand how, why, when and for what purpose the use of a CMS, in campus based courses impact the learning experience. Based on the findings of this study a model for the use of a CMS, as a support for campus based courses, is presented in the final section of this chapter.

Employing a mixed methods case study approach, qualitative and quantitative research techniques were combined, with the data from one source were used to enhance, corroborate and elaborate the data from other sources. A sample of students in the first year of the three year business diploma programs was surveyed twice and interviewed; a sample of faculty teaching those students were also interviewed as well as some of the members of committees formed to guide the selection, adoption and integration of the CMS at the college. In addition, pertinent college documents were analysed. Yin (2003) advocates that case study research is suited to situations in which there is a high degree of complexity, and it is impossible to separate the phenomenon’s variables from their context; such is the nature of learning.

Using a constant comparative method of data analysis, the information gathered from the surveys and interviews was coded into emergent themes. After initial analysis of the first student
survey, the data were constantly revised, as the faculty were interviewed and the students were surveyed a second time and then interviewed, until it was clear that no new themes emerged. The findings of the interviews with the CMS advisers and the document analysis were used to set the context for the analysis. A chain of evidence was maintained in order to increase the reliability of the information gathered during the case study. This allowed me to move from one part of the case study process to another with clear cross-referencing to the methodological procedures and the findings that resulted from the study and presented in Chapter Four.

Almost all colleges and universities are using some form of course management system, such as is the case at the college at which this study was carried out. These systems are used more often to create a web based presence in campus-based courses, than to deliver fully online courses, as was the original intent of the systems (Malikowski et al., 2007). The participants in this study saw the CMS as an integral element in their college education and they emphasised that its use, as a support for their campus based courses, was perceived to help them learn. For these learners who span several generations, and range in age from 17 to over 41, the social interactions that come from being in class with their peers and teachers is of utmost importance. This affirms the view of McNeely (2005), himself a member of the Net Generation, who surmises that “relationships are a driving force in the learning process [and]...learning through social interaction is important” (p. 44).

Conclusions

In answering the research questions the study concluded that the students and faculty perceived that the use of these tools as a support for campus based courses adds much value to learning and is an integral part of college education. This affirms the assertion made by a number of researchers (Caruso, 2006; Coates et al., 2005; Coates, 2006; Hanson & Robson, 2003;
Salaway et al., 2007; West et al., 2006) that students perceive that they learn more when the web is used to augment other teaching methodologies. While, based on the views of the student representatives on the Student Federation Council and my own observations, I expected to find that there were ways in which the use of the CMS at the college added value to learning; the overwhelmingly positive perceptions of the students were surprising. The professors at the case study college are, for the most part, using the basic features of the CMS. Even though this type of use is criticized by the skeptics (Awidi, 2008; Lane 2008), the insight gained from this study posits that this is a fundamental adaptation to facilitating the way that students prefer to access information and it has a positive effect on learning.

There are a number of characteristics of the use of the CMS that were identified by the participants in the study, to enhance and enable learning; the greatest benefits of which are the ways in which the CMS, when used effectively, facilitates access to and organisation of information, thereby helping the students to keep track of what they need to do to be successful in the courses. The greatest constraint to learning is over, under, or misuse of the CMS course sites. Even though on the surface it appears that the systems are being used to solely augment conventional practices, the use of the CMS has, in fact, added new dimensions to the ways of teaching and learning. The model for the effective use of a CMS to support the campus based experiences, presented later in the chapter, is based on the conclusions about the characteristics of the use of a CMS that enhance learning and those that create barriers to learning.

In addition to the conclusions of the study that emerged from the analysis of the findings based on the research questions and discussed in Chapter Five, there were a number of other conclusions that provide valuable insight into understanding how, when, why and for what purpose the use of a CMS affects learning. The results of this study illustrate that the
predominant conception of learning is that of the transmission of knowledge. It questions some of the assumptions made about the technology skills of students and suggests that the use of the CMS is still in a state of flux. There is disparity between the students' view of the very integral role the CMS plays in their learning and the practices of the faculty.

Conceptions of Learning

The teachers and CMS advisers interviewed for this study hold a variety of conceptions of learning, but the predominant view encapsulates learning as the transfer and acquisition of information. This orientation towards knowledge transmission is the reality in most classrooms on campus even though many teachers philosophically support constructivist practices and problem solving. Norton, Richardson, Hartley, Newstead, and Mayes, (2005) in their investigation of the variation between teachers' beliefs and practices across four universities in the UK concluded that teachers' intentions were more orientated towards knowledge transmission than were their beliefs which advocated the facilitation of learning through problem solving and a focus on learning. Herein perhaps, lies the crux of the problem with technology in education. While information and communication technologies, such as CMSs, can enable new forms of teaching and learning they cannot, of themselves, change educational practices as much of what is written implies. The preoccupation of descriptions in the literature, guided by constructivist theories, of the use of the CMS to transform teaching and learning has caused an important aspect of its use to be overlooked.

The findings of this study provide compelling evidence that, even though the use of the CMS focuses on supporting the transmission of information, it is perceived by the students to be an integral part of their education and its use has very positive effects on learning. It also
provided valuable insight into the ways in which the use of the CMS enabled students to organise, keep track and process information. This disputes the claim made by Awidi (2008) that if the CMS emphasizes information or content management, it does not merit acquisition.

**Students’ Technology Skills**

The college’s eLearning plan makes reference to the ways in which the Net generations of learners prefer to learn, as being different from other generations. This view is supported by a number of claims in the earlier literature, based mostly on speculation, that the Net Generation of students, those born in the early eighties and later, is unique in that they are the first to grow up with digital cyber technologies. It is assumed that they have distinctive ways of thinking, communicating and learning (Oblinger & Oblinger, 2005; Prensky, 2006; Tapscott, 1998; Barnes, Marateo, & Ferris, 2007). There is no question that computer and networked communication have become socially and culturally embedded throughout the lives of the students on our campuses, however, the findings of this study question the notions that the Net generation students learn differently from other generations of students and that the majority of college students, seek to integrate technology into all aspects of their learning experiences. The students who participated in the study ranged in age from 17 to over 41 and spanned several generations of learners. Their perceptions of the use of the CMS in learning were overwhelmingly similar between gender and among age groups and across generations.

This is supported by the first ever virtual longitudinal study carried out by the CIBER research team at University College London (2007) that questions the common assumption that the ‘Google Generation’ – youngsters born and brought up in the Internet age – is the most web-literate. The study reports that, although young people demonstrate an apparent ease and
familiarity with computers, they rely heavily on search engines, view rather than read, and do not possess the critical and analytical skills to assess the information that they find on the web. The report, *Information Behaviour of the Researcher of the Future* (2007), also shows that research-behaviour traits that are commonly associated with younger users – impatience in search and navigation, and zero tolerance for any delay in satisfying their information needs – are now becoming the norm for all age-groups, from younger pupils and undergraduates through to professors. The discussions with the students and faculty who participated in this study verified this. This challenges the view expressed by the professors in the McGraw Hill study who felt that they were being encouraged to use technology in their courses primarily to address the needs of the "younger" students on campus, to the determinant of learning.

**The CMS as a Utility, Not as an Option**

The students who participated in this study felt that all professors should be required to use the CMS to support their campus based courses. Its use, not only provided a means for meeting the students’ expectations regarding the electronic accessibility of course-related information (McGee et al., 2005; Morgan, 2003), but also helped them to stay on track, and improved their learning. This presents a conundrum. It was evident, from the findings of this study, that while students viewed the CMS as a utility and an integral part of their learning, the professors still viewed the use as optional. This research concluded that institutions need to implement strategies that will help motivate faculty to cultivate the technological skills and strategies necessary to more effectively integrate the CMS into their teaching to meet the needs and expectations of not only the new generation of students, but all students attending college.
The Effect of Lecture Notes on the CMS on Class Attendance

Faculty often express a concern that if lecture notes or PowerPoint slides are posted on the CMS the students would not attend class. The students in this study emphatically stated that this is not the case. In the interviews with the students they stressed the importance of classroom interactions with the teachers and as one student said “We need the teacher to learn.” While noting that class attendance was not dependent on the availability of lecture notes on the CMS they noted that all some professors did was repeat, verbatim, whatever was written on the PowerPoint slides and this resulted in very uninteresting classes. The professors’ concern that if course notes are posted online, that of itself, will affect class attendance is unfounded.

The Gap Between Potential of the CMS and Practice

Even though, based on the usage statistics, the adoption of the CMS at the college is high; its actual use by most faculty is basic. The findings of this study verify the observation of Kopyc (2007) that, “while it is true that faculty use computers every day to send email, compose texts with word processing, and search the Web, the number of faculty using technology to enhance their teaching is relatively low.” Malikowski et al. (2007), Lane (2008) and Morgan (2003) noted that even experienced online teachers use Blackboard and WebCT primarily for grade administration, e-mail, and presenting static content. This was confirmed by the findings of this study; the professors, who participated in this study, even though aware of the other functionality available within the CMS, generally used only the basic features of the CMS. Their use of the CMS focused on delivering information (West et al., 2006).

It is of fundamental importance to ensure that there is institutional support for faculty and students so that they use the CMS wisely and well, to ensure its seamless integration into the
campus based experience. Rogers (1993) contends if an innovation is perceived as better, more efficient or effective it is more likely to be adopted. Critical to this is the degree to which successes (and failures) of the innovation are visible. The findings of this research suggest that even though workshops and committees remain valuable resources for fostering engagement with the CMS, as is seen by the high adoption rate, further measures are needed to tackle the CMS conundrum in a more sustainable way.

Factors Contributing to the State of Flux of the Use of the CMS

Ioannou and Hannafin (2008), critical of the use of the functionality of the CMS, ask an important question. Is it possible that CMSs have introduced so much new functionality so fast that users have not had a chance to seriously reflect on what they need or want? As Salaway et al. (2007) noted “there is reason to believe that institutions are still in a flux implementing course management systems” (p. 29). This research supports that view.

The uneven and sporadic use of the features of the CMS may be explained by the work of Hooper and Rieber (1994) who suggested that integration of technology occurs along a spectrum of effectiveness and involvement. They noted five stages that teachers move through as they integrate technology into teaching and learning: familiarization, utilization, integration, reorientation, and evolution. At the first stage of familiarization, teachers are first exposed to the features of the CMS and their use of the system is basic. At the utilization they begin to use the CMS to support and enhance the curriculum moving beyond the basic uses, such as was the case with a few of the professors who were interviewed for the study. The integration stage is reached when the CMS is used for activities that cannot be attempted without it. During reorientation and evolution, many different features of the CMS are used, not because they are available but
because of their pedagogical value, and the use of the CMS results in fundamental changes in teaching and learning. Based on this model this study concludes that there is still much work to be done before the use of the CMS reaches the evolution stage.

The variable use may also be explained by the work of Ertmer (1999) who identified two sets of obstacles to the integration of technology in education. They identify first order obstacles which include problems with the hardware, infrastructure and support for using the technology, and second order obstacles which require changes in pedagogy or personal preferences that influence the professors' use of the technology. The findings of this study indicated that the college has a well established infrastructure and the CMS is supported in a variety of ways. The issues of stability, noted in the literature as being one of the greatest barriers to integration of the CMS into teaching (West et al., 2006) was not present at this college. In light of this it can be concluded that the second order obstacles provide the likely explanation for the uneven use of the CMS. These barriers are typically rooted in teachers' underlying beliefs about teaching and learning and their personal preferences and comfort level with technology. They are entrenched in personal perspectives of teaching and learning and pedagogical principles.

**Questioning Assumptions About the Use of CMS-based Discussions**

The findings of this study suggest that there is much work to be done surrounding the use of online discussions and collaborations. Clegg and Heap (2006) postulate that the faculty who must facilitate these discussions "usually have no training, no role models, no benchmarks and no quality standards regarding this particular medium" (¶1). They propose that faculty need help to improve their interactions online, and to develop a framework for effective facilitate. The conclusions of this study, about the mixed messages surrounding the use of the communication
and collaboration features of the CMS questions the assumptions in the literature of the effectiveness of this particular mode of communication between faculty and students and among students.

**The Importance of the Teacher**

This research concluded that the fear of some faculty that the value of the teacher would be decreased by the use of technology is unfounded. As technologies evolve, faculty members have a more complex, not a lesser, role to play in creating and facilitating learning experiences. This research observed the existence of a fine line: educators need to constantly consider and assess strategies that make use of technology such as the CMS, and balance that with the interactions in the classroom. The systematic use of the CMS actually enhances the role of the teacher, at least for those who seize the opportunities that it offers and enables.

**Reflective Practice: Assessing the Use of the CMS**

Since its adoption, as noted by one of the CMS advisers, the use and integration of the CMS has not been assessed or evaluated, until now. The current practices at the college are driven more by the availability of the technology, than by pedagogy. There is not much reflection on the part of the professors about the strategies that have been employed to use the CMS. The interviews with the CMS advisers revealed that when the CMS was purchased, there was the hope that, making the technology available would result in it being used.

A number of recent studies of the implementation of CMSs, mostly done in American universities (Zemsky & Massey, 2004; Lane, 2008; Moergan, 2003; Collins & vand er Wende, 2002), support the findings of this study and indicate that although CMSs have been widely adopted, significant changes in teaching and learning are uncommon. In many ways these studies
are critical of this use of the CMS mainly to supplement existing practices. These studies reflect the inherent assumption of many administrators that simply adding technology to the repertoire of teaching and learning tools will change practice in education (Zenois et al., 2004). This is not the case. Despite the fact that the lessons learned from the unsuccessful endeavours of educators to incorporate radio and television into teaching and learning, provide compelling evidence that this is an ill conceived strategy many current policies and practices are technology driven and lack a pedagogic rationale (Kirkwood & Price, 2006). It is therefore not surprising that there is a sense on college campuses that the potential of technology and the CMS is not fulfilled. Much of the earlier discussions in the literature have focused on access to, quality and skills required for technology use; these are no longer much of an issue. The divide is now about quality of use of the tools to enable learning. The findings of this research question the observations in the literature that the potential of the use is unfulfilled. It instead highlights the importance of assessing the impact of the CMS in the context in which it is used, and concludes that it plays an important role, even though it is not the role that was predicted and expected.

**Current State of CMS Research**

The CMS research has so far focused on technical issues and issues about the use of certain features of the CMS. It is almost predominately survey based. This research provides helpful information, but in order to advance CMS use in ways that enable learning, CMS research needs to be grounded in frameworks about how people learn. Given the popularity of these systems and their presence of just about every university and college campus, an increasing number of professors will likely need guidance on how to effectively use the CMS as a complement to campus based instruction.
Whatever one believes about the potential of the use of the CMS to impact learning, there is no question that the use of the CMS is more than a passing trend. It has affected learning and teaching at multiple levels at the college, and stimulated changes in how learning and teaching occurs. No single technology or tool is likely to meet the needs of or be perceived in the same way by all learners. It is essential to attain a more theoretically driven understanding of the educational rationale and consequences of using the CMS. Models for its effective use in campus based learning are key to harnessing the opportunities the use of the CMS affords, thus enabling effective educational experiences for learners.

**Implications**

At the case study college, the technical infrastructure is stable and well established and there is support through help desks, elearning advisers and training opportunities yet, the faculty and the CMS advisers recognised that they were not using the CMS to its full potential. At the same time the students strongly advocated for its use to be mandatory, as they saw it as an integral aspect of the campus based experience. Examining the disparity between the low use of the features of the CMS, its widespread availability with each course having an automatically created course site, and the views of the students that it helped them to learn, suggests that there are many factors in the academic digital divide that need to be understood before the CMS is used effectively.

Based on the findings and conclusions of this study there are a number of areas to which colleges must pay particular attention. Tinto (2002) identified several factors which enhance student persistence, the most important of these conditions focused on ensuring that the settings on campus foster learning. He noted that institutions that are successful in creating learning environments which engage students, facilitate contact with faculty and other students, and
provide them with support for learning, are more likely to retain and graduate their students. The overwhelmingly positive perception of the students about the ways in which the use of the CMS positively impacts their learning highlights the importance of the implications of the conclusions of the study.

**Defining Necessary IT Skills for Students**

As the use of the CMS becomes ubiquitous on campus there are implications for the technology skills of both the students and the faculty. If the CMS is used in all courses, and it is not an optional way for students to access course materials and engage with course content and activities, those without adequate technology skills may be disadvantaged. Even though, not a concern at this large, urban, college it may be an issue at a smaller, rural college. It is crucial to ensure that polices and practices are in place to ensure that technology is an enabler and not an obstacle to learning. Colleges should identify and require base-level technology skills and offer training sessions that prepare students with technology skills needed to be successful, offering where possible short training sessions during the first week of classes or before classes begins. These technology skills should be communicated in college materials, advising sessions and program/course requirements. The previous experiences with the use of educational technology, of the students in this study, varied widely. The conclusions of this study revealed that it should not be assumed that all students are comfortable with using technology to learn, in particular the younger students.

**Student IT Fees**

In collaboration with the Student Council, a student IT fee was created at the college in 1990. This fee was matched by the college, to build college capacity for providing student
access to computers and education technology for course work as an option to enhance learning. This was part of a strategic initiative at the college. Almost twenty years later, as the use of technology, such as the CMS, has come to be viewed as a standard part of instructional infrastructure, its function has shifted from option to utility. This shift, in turn, has implications for the IT fee, which may not be appropriate as a means of providing a utility service. An economist would say that IT, as a utility, is an externality which is assumed, like a fire department, to benefit everyone. Its aggregate or public value can be measured, but its individual or private value is difficult to discern. An implication for policy is that the IT fee is now more like a tuition fee than a users' fee.

**Tradition as a Barrier to Integration**

Even though the professors using the CMS are positive about the impact of the CMS on learning, the CMS advisers believe that the college, based on what was available at the time, made the right choice, and the overwhelming majority of students said that the CMS is an important aspect of their college education; history is a barrier to its successful integration into teaching and learning. The perception at the college among some faculty and administrators, eight years after the CMS was adopted that academics were not consulted and did not have much input into the decision to purchase the CMS, is a barrier to its use. Many strategies designed to overcome this perception, including committees designed to discuss computing and technology issues, IT days and conferences with an aim of linking pedagogy with technology strategies, have not been successful in overcoming this barrier. There is still much work to be done to get all of the stakeholders focused on working to ensure that there is effective use of the CMS. The involvement of faculty in decisions surrounding the purchase of new technology for teaching and learning is of utmost importance.
Ongoing Support and Professional Development for Faculty

Ongoing professional development and support for faculty is essential; this was a concern of the professors who participated in the study. Faculty need to have a base level of competency with the use of computers and the Internet in order to successfully utilize the features available within the CMS. There was also a desire, expressed by the faculty who participated in this study, for them to have opportunities to share their practices and purposes for using the course sites with each other. They expressed a desire for collaborative conversations, in addition to structured workshops, with their colleagues who are using the course sites. These conversations would be a way to share ideas about reasons for using the features with the CMS and their potential for addressing specific learning needs. Intentionally setting up opportunities for faculty to learn how to use, and to showcase successful work within, the CMS, facilitating positive communication among adopters, and sharing findings such as those of this research study are all strategies that should be fostered to increase its effective use.

In addition it is important for faculty to converse with students and to evaluate the use of the CMS from the students' perspectives. Not one of the professors interviewed had had any discussions about the ways that they were using the sites with the students enrolled in their courses. It is critical that we follow the advice of Coates (2006) and put the students at the centre of conversations about learning. Gathering and sharing knowledge through seminars, hallway conversations, facilitated discussions and formative feedback from students, will assist faculty and administrators to better understand and access the implications of the use of the CMS as a support for courses offered predominately in the classroom.
**Consistent Use of the CMS**

The students emphasised the importance of consistent use of the CMS and of the structure and organisation of the information posted on the course sites. The inconsistent use of the CMS, by faculty, created barriers to learning. Students clearly want more of the courses to be supported by the use of the CMS, and for faculty to use them in a somewhat standardized manner. This is not to say that all professors should follow identical procedures, but collaboration for purpose of consistency will decrease confusion for students enrolled in multiple courses within a program.

**The Hybrid Course Model: Time Spent in Class Versus Time Spent Online**

From descriptions in the literature, one would have expected, such as do the administrators at this college, that the CMS use would result in supporting richly interactive hybrid courses. Classification of hybrid learning varies in the continuum from fully face-to-face to fully online. Often, “hybrid” or “blended” learning is used to describe any course that combines traditional face to face instruction with Internet based technologies (Swenson & Evans, 2003). Generally it follows Twigg’s (1999) definition which refers to the “replacement” of traditional class time with out-of-class learning and assessment activities. The reason for offering these courses is often promoted as a way to accommodate the needs of today’s students by offering instruction that is accessible and flexible. While taking this into consideration, the findings of this study suggested that the balance between time spent online and face-to-face must be carefully considered. The students in this study were emphatic that if the use of the CMS results in less time in the face-to-face classroom, this could be a barrier to learning. In other words, CMS use should not be traded-off against conventional teaching.
At this college, in a number of programs, the business faculty are encouraged to offer more courses in the hybrid mode. Based on the conclusions of this study, with increasing adoption of the CMS into campus-based learning, it is important to carefully monitor and continually assess the substitution of time spent in the classroom with activities online. Substituting face-to-face time with online time may have implications for the perceived quality of student learning.

*Connecting Faculty With Research-Based Models*

It is of fundamental importance for institutions to connect faculty to current research which demonstrates the pedagogical value of technology in learning contexts.” At the same time, as Kopyc (2007) observes, is important to avoid all encompassing models as that fails to accommodate individual pedagogical practices. She goes on to stress that it is imperative for institutions to explore effective uses of technology in teaching and to share those findings not only with those within the institution, but also with colleagues at other institutions. One of the reasons for not using the CMS, provided by those professors who did not use it, was that they were not aware of the ways in which the use of the CMS could benefit learning. This finding supports Perry’s (2004) view that “getting the word out is among the most important attributes of a successful effort to implement a new technology based learning environment” (p. 36). It is the intent of the model for effective use to provide one example of ways in which the use of the CMS can enhance learning.

*Model for Effective Use*

It was not the aim of this research study to provide a blue print for the effective use of the CMS, but it does offer a much-needed theoretical and empirical rationale for a model to enhance
learning when the CMS is used to support campus based education. One of the most important messages to come from this research is that educational institutions and those who teach and learn in them need to be constantly reflecting on and investigating the diverse nature of students, the ever changing environment of higher education and the context in which learning takes place. Mainstreaming any technology because we hope it might address the needs of a diverse student body is a flawed strategy. In order to successfully and effectively utilize the features of the CMS we need to focus on evidence based practice in which we actively examine our assumptions, seek evidence as to their effectiveness and be prepared to adapt or change our practices when the evidence suggests a need to do so (Kirkwood & Price, 2006).

The most recent studies about the use of the technology in education indicate that students prefer a moderate amount of technology in their courses (Salaway et al., 2007). This is consistent with the findings of this study. All the students who were interviewed, and a number of those who provided written comments on Survey Two, affirmed a very strong preference for in-class learning. Even though the use of the CMS is an integral part of their college education and there are number of ways in which it positively impacts learning, a barrier to learning would be if the use of the CMS resulted in less time in the face-to-face classroom. The study concluded that the students have a very strong preference for campus based instruction, supported by elements of the use of the CMS course sites. In Describing a Decade of Canadian University Students at the CSSHE Conference in Vancouver, Patterson (2008) affirmed that, by a large margin, the preferred type of instruction for undergraduate students is classroom based with on-line supports.

While supporting the results of the Patterson study, the findings of this study highlighted that it is not enough to just conclude that the students prefer a moderate amount of technology
(Salaway et al., 2007), what is in fact of primary importance is that the balance between what is
done in the online environment and what is done face-to-face in the classroom should strongly
favour the latter. The message from these students was clear that if the use of the CMS resulted
in less interaction with the professors then that would be a barrier to learning. This study
provided valuable insight into understanding what the students perceive to be “moderate use of
technology” and informs the model for the effective use of a CMS in campus based courses. The
model also emphasizes the fundamental premises of Mark Hopkins and the log, as described in
Chapter Five.

*Theoretical Framework for the Model*

For the last decade, a prominent debate in higher education has been the examination of
learning versus teaching as these concepts relate to the learning process. This debate was
described by Barr and Tagg (1995) who proposed a shift in how instruction should be perceived
and called for a change in teaching from an instruction centered (focus on teaching) to a learning
centered (focus on learning) paradigm. If one assumes that learning is the product of teaching
and that the purpose of teaching is for learning to occur then this debate is an odd one. However,
one of the positive outcomes of this debate has been a focus on all factors related to learning, and
much literature and research has highlighted the importance of the creation of effective learning
environments.

Faced with this shift in emphasis from teaching to learning, colleges were prompted to
examine their classroom practices and to find ways to enable students to be “active discoverers
and constructors of their own learning” (Barr & Tagg, 1995, p. 21). As the teaching versus
learning debate was taking place on college campuses, descriptions about the potential of
technology to enhance learning flourished in the literature. A good example of this is provided
by the work of Bransford et al. (2000) who in their book *How People Learn: Brain, Mind, Experience and School*, stated that "computer based technologies can be powerful pedagogical tools – not just rich sources of information, but also extensions of human capabilities and contexts for social interactions supporting learning" (p. 230). This potential has been the lens through which, much of what is written about the use of technology, including the CMS, for learning, is analysed. As is evident in the eLearning plans of the College at which this study took place, it was the forecasted potential of the CMS that was the driving force behind the adoption of course management systems at almost every college and university.

As this study progressed, it quickly became evident that this, the information age has resulted in additional challenges for educators and educational institutions. More new information has been produced in the last three decades than in the last five millennia (Haddad & Draxler, 2002). As rapidly as information is being generated, there are growing means by which to disseminate that information, Learners are poorly equipped to cope with the explosion of information resources competing for their attention. The perceptions of the students and professors interviewed for this study confirmed this. The age old objective of education, the advancement, application, dissemination and creation of knowledge and the search for truth, faces new challenges in light of the explosion of easily accessible information. The findings of this research illustrated that if we look at the use of the CMS through the lens of the ways in which, when used effectively, it can help students organise, manage and keep track of the information they need to be successful, harnessing the anytime anywhere access that the online environment makes possible, a model for its efficacy in learning emerges.

Information is the foundation of knowledge. The "information explosion" sparked by digital technology has fostered an increasing awareness of the sheer mass of information
available today. As great amounts of information become readily available and easily accessible to anyone with access to the Internet, the ability to intelligently process that information takes on increased importance. Developing the dispositions and skills necessary for informed information processing, and finding ways for student to organise, manage and keep tract of the information necessary for them to be successful in their courses, have always been elements of good course design, however, they are even more critical components of education in an information age.

Cognitivism, emphasises that instructional materials must be presented to learners in ways that facilitate students' learning. If materials are organised effectively and in ways that help learners to make connections then it helps them to learn. Cognitive theory is at the core of how students make sense of information; it attempts to analyse how individuals receive, retrieve and process information. Several types of learning strategies can be used to assist information processing. Information processing models, as the name implies are focused on how information is processed rather than on how learning happens, even though it could be argued that that distinction is semantic.

Boettcher (2007) states that a core learning principle is that every structured learning experience has four elements: the learner, the teacher, the content and the environment, with the learner at the centre. This vision can be captured by envisioning the faculty member and student interacting about a problem, or the content that is the focus on the course or learning experience, in a specific context or environment. Whatever the scenario, the student who is at the centre of the learning experience, is guided by the faculty member, accessing the resources available and acquiring useful knowledge for the experience. “Whatever the specific environment, a well planned course provides a variety of interaction choices for students” (Boettcher, 2007, ¶ 9)).
Gagne (1985) suggests that learning tasks can be organised into a hierarchy according to their complexity, and that there are a number of prerequisites that should be completed to facilitate learning at each level. He states that there are a number of instructional events that should provide or satisfy the necessary conditions for learning and serve as a basis for designing instruction. Considered the father of instructional design, he used his Conditions of Learning (1965), to introduce the concept that all instruction is not equal and that different types of instruction are required for different times of learning outcomes. As Boettcher (2007, p.33) surmises “what this principle means is that what a faculty member does makes a difference to what students do, and what students learn.” Gagne’s work illustrates the importance of designing teaching and learning events to facilitate student success. It informs the model of using the CMS to help students process the important and relevant information for a course.

Ausubel’s (1960, 1978) theory is concerned with how individuals learn large amounts of meaningful material from verbal/textual presentations in a school setting. According to Ausubel, the advance organiser is a means of preparing the learner’s cognitive structure for the learning experience about to take place. It is a device to activate the relevant schema or conceptual pattern so that new information would be more readily ‘subsumed’ into the learner’s existing cognitive structure or mental depiction. One of the main advantages of the advance organiser model is that it assists teachers in conveying large amounts of information to their students in a meaningful and efficient manner. Convinced of the importance of advance organizers, Joyce and Weil (1996) developed the Advance Organizer Model of Teaching. They stated that “whenever ideas or information need to be presented, renewed, or clarified, the advance organizer is a useful model” (p. 83). They note that advance organizers serve a variety of purposes including clarifying the aims of the lessons and presenting key elements of a learning task or learning
material. Woolfolk (2000) argued that advance organizers can "direct your attention to what is important in the coming material; they highlight relationships among ideas that will be presented; and remind you of relevant information you already have" (p. 288). Bromle, Irwin-DeVitis, and Modlo (1995) maintain that the mind arranges and stores information in an orderly fashion; strategies that assist in the organisation of information facilitate learning. These observations all support the framework of this model for the use of the CMS as a support for campus based courses.

When the CMS is used to guide the students' learning by making them aware of the learning objectives of the course, the outline and schedule for the lessons, important dates especially those for tests and assignments, summaries of important content, examples of credible resources, and opportunities for review and practice; it is not only convenient, but it helps them to manage, organise and keep track of information; it helps them to learn.

If we think of the CMS as an advance organiser for learning and we look at some of the conditions that help students to process information, what evolves is a model for the use of the CMS as a support for campus based courses. The model proposes that the CMS should be used as a framework for helping students understand what is to be learned, and what they need to do to be successful in the course by enabling them to be organised and stay on track. This model proposes the use of the course sites to provide guidance for learning, and encompasses the use of the basic features of the CMS as a place to post information, announcements and grades.

**Model for the CMS as Guide and Organiser**

This model proposes that the CMS is used as a reference for the course and is fully integrated with the classroom based experience, but does not detract from time spent interacting
with the teacher and classmates in the campus-based classroom. The information on the course sites should encompass the important elements of the curriculum - the rationale, aim, content, evaluation and resources.

*Anytime, anywhere access to important course information including:*

- course outlines
- schedules
- due dates
- explanations of assignments
- course expectations
- timelines
- extra resources, especially for those topics that are not covered in-depth during face to face class time
- review quizzes, or information, relevant to the learning objectives of the course
- samples of excellent projects or past student work

*Materials posted on the course site must be:*

- organised in folders, not all in one place. For example, all assignments should be in an assignments folder. The folders should be easily identifiable and clearly marked. If the information in the folder is time sensitive then actual dates should appear in the folder description, not just Week one or week fourteen.

- updated regularly, making all of the information available to the students during the first week of classes is confusing and overwhelming.

- added in a timely manner - if there is an expectation that a document should be printed and taken to class, then that document would have to be posted so that the
students have time to print the document, not just a few hours before class or the same day as the class.

**Lecture notes or PowerPoint presentations as Advance organisers for the lecture must:**

- include relevant and significant elements of the lectures - summaries of the main points of the lecture, not the information that will be repeated verbatim in class;

- be focused so that the elements of the notes or slides should be such that the classroom lecture increases detail or complexity;

- organise and sequence the content and highlight key facts, concepts and principles;

- have a practical bias through examples, exercises or empirical illustrations in order to make the content more meaningful to the learners.

**Announcements and email messages must be posted:**

- often, preferably at least once a week providing information about the week's schedule and important tasks;

- and or sent to the students with enough time for them to be checked in a timely manner, especially if they are about classes that are cancelled or classroom changes. For example if an announcement about a cancelled class is posted 10 minutes before class is scheduled to begin it is not helpful.

**Grades must:**

- be posted in the gradebook as online access to grades is a motivating factor for students; it encourages them to work harder to get better grades.;

- also include additional feedback, provided through the gradebook, especially for online review tests as this helps them to learn.

The information on the sites should include the main and most representative elements of the course. Information, easily available, via the Internet, is no longer structured in a clear and
logical fashion; it is very fragmented, multi-channeled and simultaneous. Helping learners to make sense of information, in this age of information overload, is increasingly a more complex element of instruction and role for faculty. The features made available by the use of the CMS can assist with this task.

The intent is for the model to be continually adapted as faculty become more familiar with the more advanced features available through the CMS. It is clearly evident that much more research is needed. This study has outlined some key factors of the use of the CMS which affect the way students learn, in the context of the College, where the study took place. There are many other contexts, in which learning is situated, and it is of utmost importance for further research to identify other models of effective use.

**Conclusion**

While I am an avid user and ardent supporter of instructional technology, I am concerned that we are too quick to adopt new technology (including the CMS) without critical and ongoing assessments of its worth and usefulness in the classroom. The findings of this study suggest that my concern is justified. There is no doubt that new approaches to learning and teaching have to emerge, to keep pace with this connected world in which access to information is immediate and considered by many to be paramount. At the same time, grounded in the philosophy that learning has more to do with making connections between ideas and concepts than on the transmission and acquisition of information, and based on the findings of this research, it is evident that the intellectual excitement, interpersonal concern and motivating components provided by teachers in the on campus classroom are key to making those connections. It is this that students, even those who have grown up in a digital world, value most in learning. Using the CMS to replace face-to-face contact in the classroom was not desired by either the students or faculty. The ideal
of "Mark Hopkins on one end of a log and a student on the other" continues to capture the essence of campus based education. When the CMS is used to enhance the interactions that take place on the log, but not to replace Mark, it is highly valued by the students.

Laurillard (2000), in her book *Rethinking University Teaching: A Conversational Framework for the Effective Use of Learning Technologies* advocates that "we should be building a body of knowledge of how best to use learning media, and creating a teaching profession that knows what it is doing and why" (p. 6). While this study does not offer "how to do it" advice because teaching and learning are not normative sciences, the conclusions of this study offer a way of thinking about the use of a CMS to facilitate learning, informed by the perceptions of faculty and students, at the case study college.

Even though Blackboard was the CMS that was the focus of this research, CMSs are very similar in the tools that they are comprised of, and the processes which they facilitate. The principles here, even though based on a case study of business students at one Ontario College, may be relevant to a range of institutions, disciplines and class settings. As Katz (2003) noted, some form of the CMS will most likely become the fabric of the higher educational experience, in much the same way that "chalk, blackboards, paper, textbooks, uncomfortable chairs, touch screen monitors, erasers, and presentation software have become part of the historical fabric" (p. 56). There is growing evidence that these systems have the potential to add much value to, but not replace, the campus based learning experience. Effectively integrating course management systems into teaching and learning is an essential step in the evolution of the use of technology to facilitate learning.
The adoption of course management systems to enhance learning will follow the path directed by the dualism that defines and adds richness to higher education; that of the opponents who will seek to constrain its use and the advocates who will further its use. There is no revolution that was predicted in the earlier literature, and one is not likely to happen, instead there is an intellectual evolution, another element in the historical scholarship of academics as teaching practices are researched, reflected on, and renewed, ensuring both relevancies to new ways of knowing and grounding in traditional values.
References


Appendix A:
Survey One Questionnaire

My.Seneca and Learning – First Survey
(online)

Do you have regular access to a computer?
Yes  No

How often do you use a computer?
A few times a month  Once a week  Every day or two
Several times a day

How would you rate your current computer skills?
Very Good  Good  Fair  Poor

How often do you use the Internet?
A few times a month  Once a week  Every day or two
Several times a day

Please indicate your level of agreement with the following statement:
"I am confident of my ability to use the Internet to help me to learn".
Strongly Agree  Agree  Disagree  Strongly Disagree

Do you have a high speed Internet connection at home?
Yes  No

At Seneca College some courses will have information posted on course sites which you will be able to access through the College's portal My.Seneca.

Do you plan on accessing My.Seneca from home?
Yes  No

At the high school you attended, which of the following technologies did you use in your courses? CHECK ALL THAT APPLY
A course management system such as Desire2Learn, Blackboard, WebCT, Moodle
Course website
Email to communicate with your professors
Blogs or online journals
Online tests or quizzes
Access to online library resources
Online access to grades for tests and assignments
Podcasts
Webcasts
None of the above
Did the use of the following help you to learn?

Yes  No

- A course management system such as Desire2Learn, Blackboard, WebCT, Moodle
- Course website
- Email to communicate with your professors
- Blogs or online journals
- Online tests or quizzes
- Access to online library resources
- Online access to grades for tests and assignments
- Podcasts
- Webcasts
- None of the above

Please indicate your level of agreement with the following statements:

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
</table>

- Computers make my job as a student a lot easier.

- I would not be able to learn if I did not have access to the Internet.

- I would prefer if all of the information for my courses were available on a course web site.

- I use computers for my courses only when I have to not because I want to.

- Using the Internet to find resources is necessary for me to do well in a course.

- I prefer to communicate with my teachers using email rather than speaking with them before or after class.
If important information about my courses are available online it would help me to learn.

It would be very convenient for me to be able to access course notes and resources online.

I would prefer to participate in an online discussion rather than a discussion in the classroom.

I would rather have printed handouts for my courses than material available online.

I believe that having course content and other course information available online would make it easier for me to study.

I would be more likely to participate in group work if I could communicate with my group members online and we did not have to meet face to face.

If course notes are available online I would not go to classes.

If I had online access to my grades for my assignments and tests I would study harder so that I can improve my grades.

The use of the online environment in my courses would improve my learning.

Gender
   Male   Female
Please provide any comments you have about the ways in which you think that online course sites would help you to learn.

______________________________________________________________________________

______________________________________________________________________________

Please provide any comments you have about the ways in which you think that online course sites would make it more difficult for you to learn.

______________________________________________________________________________

______________________________________________________________________________

Thank you very much for completing this survey. Your time and participation is much appreciated.

You will be invited to participate in a follow up survey at the end of this semester.

Please use your browser's BACK and NEXT buttons to navigate between pages should you want to review your answers before submitting the survey.
Appendix B:
Survey Two Questionnaire

My.Seneca and Learning Second Semester Survey
(online and paper based)

1. There are many features in My.Seneca that your professors may or may not have used.

For each of the items listed below please use the scale provided to indicate to what extent you feel it helps you to learn.

If any of the items listed were not used in your courses please select “Was Not Used”.

<table>
<thead>
<tr>
<th>Feature</th>
<th>To A Great Extent</th>
<th>Quite a bit</th>
<th>Very Little</th>
<th>Not at All</th>
<th>Was Not Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Announcements</td>
<td></td>
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<tr>
<td>Gradebook</td>
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<tr>
<td>Study Guides</td>
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<tr>
<td>Course Outline</td>
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<tr>
<td>Weekly Schedules or Addendum to the course outline</td>
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<tr>
<td>Discussion Boards</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Assignments</td>
<td></td>
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<td></td>
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<tr>
<td>Lecture Notes</td>
<td></td>
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<tr>
<td>Information about the Professor</td>
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<tr>
<td>Classroom Policies</td>
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<tr>
<td>Links to Additional Resources on the Internet</td>
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<tr>
<td>Reading Lists from the Library</td>
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<tr>
<td>Course Blog/Journals</td>
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<tr>
<td>Wikis</td>
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<tr>
<td>Group Pages</td>
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<tr>
<td>Virtual Classroom/Chat</td>
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<tr>
<td>Online Tests for Grading Purposes</td>
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</tr>
</tbody>
</table>

366
2. Please give us your opinion about the following statements regarding your overall experience with the My.Seneca course sites.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Was Not Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>My.Seneca is a major part of my college education.</td>
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<tr>
<td>I prefer taking courses that use My.Seneca course sites to supplement what is done in the classroom.</td>
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<tr>
<td>It is convenient to have all of the important course information available on My.Seneca.</td>
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<tr>
<td>Having access to online course information makes it easier for me to study.</td>
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<tr>
<td>Information on My.Seneca helps me to keep track of Assignments.</td>
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<tr>
<td>The use of the My.Seneca course sites helps me to be more engaged in my courses.</td>
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<tr>
<td>Library resources available through the My.Seneca course sites help me to complete my assignments and tests.</td>
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<tr>
<td>Having access to my grades on My.Seneca encourages me to work harder to get better grades.</td>
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<tr>
<td>I use online materials to make lectures more meaningful.</td>
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<tr>
<td>The use of My.Seneca helps me better communicate with my classmates outside of class.</td>
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<tr>
<td>The use of My.Seneca helps me to clarify what is required to do well.</td>
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</tr>
<tr>
<td>I have helpful online discussions with other students.</td>
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</tr>
</tbody>
</table>
I have helpful discussions with my professors on My.Seneca.

It is easier for me to explain my ideas in online discussions than in the classroom.

The content on My.Seneca helps me when I am preparing for tests and assignments.

Extra resources and links posted on My.Seneca help me to review concepts taught in class.

It is difficult to access information posted on the course sites.

If lecture notes are posted on the course sites I am less likely to attend class.

It is easy to catch up on missed classes when there is information on the My.Seneca course sites.

In courses where the My.Seneca course sites are used I find it easier to keep track of what I need to do to be successful.

Professors use My.Seneca in ways that improve the overall teaching.

In general I am very satisfied with my experience with the My.Seneca course sites.

Gender:
Male Female

Age:
17 & Under 18 19 20 21 to 24 25 to 30 31 to 35 36 to 40 41 and over

5. I access My.Seneca mainly from:
Home
Computer lab at the college
Laptop at college
Other ____________ (Please specify)

In general, I access the My.Seneca course sites:
At least once a day or more
5-6 times per week
2-4 times per week
Once a week
Less than once a week

On average I spend the following amount of time on one course site whenever I log in:
Less than 15 minutes  15 to 30 minutes  31 to 45 minutes  46 minutes to an hour
Over one hour

Which of the following benefits from using My.Seneca in your courses was the most valuable to you:  **Check all that apply.**

Improved my learning
Convenience
Helped me manage my time
Access to the course information
Helped me to communicate with my classmates and professors
No benefits

Please provide any additional comments you may have about the ways in which the use of the My.Seneca course sites helps you to learn or makes it more difficult for you to learn.

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Thank you very much for completing this survey.

I would like to volunteer to participate in a focus group interview to better understand the responses to the survey about the ways in which My.Seneca affects learning. The session will last for approximately 45 minutes and will include a pizza lunch.

Yes No

If you are willing to participate in the focus group interviews, please provide your email address:

______________________________________________________________________________

Thank you very much for completing the questionnaire. All data collected through this survey will be kept strictly confidential; findings will be reported as grouped data and no participant will be identifiable in any reporting of the findings.

The summary of the results of this survey will be available in Student Services at the Newnham and Markham campuses when the study is completed (Winter 2009).
Appendix C:
Students - Interview Guide

Collection of Background Information:
Students asked to identify the name of the program in which they are registered, their ages and their education background

Q. 1 -There is a lot that is written and said about the computer and Internet skills of the students currently attending college. You are identified in the literature a group who are tech savvy and very comfortable using computers and the Internet. Do you think that this is true about yourself? Is it also true of your friends?

Q. 2 – How many times a day do you check the course sites?

Q. 3 - How did your professors use My.Seneca in the courses that you took last semester?

Q. 4 - What do you see as the major benefits to the use of My.Seneca in the courses that you have taken so far?

Q. 5 - In the courses that you have taken so far have there been any drawbacks to using the My.Seneca course sites?

Q.6 - What effect do you think the use of My.Seneca has had on your learning?

Q. 7 - Many professors feel that if they post the course notes on My.Seneca you will not go to class – is that so? And if so or not so why or why not?

Q. 8- Do you think that in general your professors use My.Seneca effectively?

Q. 9 - If there was one thing that your professors could use My.Seneca for in your course what would it be?

Q. 10 - What advice would you give to your professors about using My.Seneca to help you learn?
Appendix D:
Faculty using the CMS - Interview Guide

1. What courses do you teach?
2. How long have you been teaching?
3. How would you describe your level of experience with using the Internet and computers?
4. Do you use your Blackboard course sites? If so, how long have you been using Blackboard?
5. What prompted you to use Blackboard?
6. How would you define learning?
7. Please describe the tools that you are using in your Blackboard course sites and your purposes for using those tools
8. Which of these do you think that the students find most useful?
9. What is your perception of the impact of the use of Blackboard on student learning?
   Probes: In what ways do you think the use of Blackboard will help students to learn?
10. Are there ways in which you think that the use of Blackboard creates a barrier to learning?
11. In what ways has the use of Blackboard impacted the way that you teach
12. Is there anything that you would like to add about the affect of Blackboard on learning?
Appendix E:
Faculty not using the CMS - Interview Guide

1. What courses do you teach?
2. How long have you been teaching?
3. How would you describe your level of experience with using the Internet and computers?
4. Do you use your CMS course sites?
5. What are the reasons why you have chosen not to or prefer not to use your CMS course sites?
6. This study is exploring the characteristics of the use of a CMS that enhance learning and those that create a barrier to learning. How would you define learning?
7. What is your perception of the impact of the use of a CMS on student learning?
8. Are there ways in which you think that the use of a CMS may create barriers to learning?
9. How would you define learning?
10. Is there anything that you would like to add about the affect of Blackboard on learning, or at the college?
Appendix F:
CMS Advisers - Interview Guide

1. Please describe your role at the college when the decision surrounding the use of a CMS at the college was being made...

2. How was the decision made to adopt a college wide CMS?

3. What is your opinion about the way in which the CMS was selected?

4. What were your expectations of the impact of a CMS at the college?

5. What is your perception about the way in which the CMS was received at the college?

6. Please describe any implementation problems and issues.

7. Do you think that the college made the right choice?

8. What is your perception of the impact of the CMS on the way that professors at the college teach?

9. What is your perception of the impact of the CMS on the way that the students learn? Please describe the ways in which you think the CMS enhances learning as well as the ways in which it may create barriers to learning.

10. Would you like to add anything about the impact of the CMS at the college?

Thank you very much for taking the time to participate in this research project.
Appendix G:
Students - Email Invitation to Participate in the Study

Dear Student (student's first name inserted automatically by Survey software),

Re: Invitation to participate in a Research Study on learning

Welcome to Seneca College. We are delighted that you have chosen to study at Seneca.

You are invited to participate in a research study that seeks to better understand the characteristics of an Internet based resource used at the College. The purpose of this study is to explore how, when, why and under what conditions the use of an Internet based resource, My.Seneca, in some courses affects learning. The research findings will increase our understanding of the impact of the online environment on learning. If you are willing to participate in this study please read the Letter of Information before completing the survey.

By completing this survey you are agreeing to participate in the study under the conditions described in the invitation. The survey is being administered by The Office of Institutional Research and Planning at Seneca but only the researcher and her Thesis Supervisor will have access to the results.

My.Seneca and Learning – Initial Survey

Please submit the survey responses before Monday September 21st, 2007. It should take you approximately 10 minutes to complete the survey.

We appreciate your time and participation in this survey. If you have any questions about this survey please contact Valerie Lopes at valerie.lopes@senecac.on.ca or 416-529-2684

Thank you very much for your participation in this research study.
Appendix H:
Students - Letter of Informed Consent

Dear Student,

Re: Invitation to participate in a Research Study which examines perceptions about the impact of My.Seneca on learning.

Welcome to Seneca College, we are delighted that you have chosen to study at Seneca.

Since you are registered in one of the three-year business diploma programs at Seneca you are invited to participate in a research study that seeks to better understand the characteristics of an Internet based resource, My.Seneca, used at the College. The researcher, Valerie Lopes, a professor at Seneca who does not teach in any of the business programs, is a student in a Doctoral Program in the Department of Theory and Policy Studies at the Ontario Institute for Studies in Education/University of Toronto. This research is being conducted in partial fulfillment of the requirements for this degree.

The purpose of this study is to explore how, when, why and under what conditions the use of My.Seneca in some courses affects learning as perceived by students and faculty. The characteristics of My.Seneca that enhance learning as well as those that interfere with or create barriers to learning will be explored. The research findings will increase our understanding of the impact of the online environment on learning.

Your participation in this study is completely voluntary. If you choose to participate in the study you may withdraw at any time. The information that you provide will not be seen by any of your professors. Your name will not be required on the survey. Only my Thesis Supervisor and I will have access to the information. Participating or not participating in this study will not affect your grades or standing at the college now or in the future.

If you chose to participate in this study you will be asked to complete two Internet based surveys. If there are any questions you feel that you would not like to answer please feel free to skip them.

a) The first survey must be completed before day 10 of the first semester, Monday September 17th, 2007. It will take about 10 minutes to complete.

b) You will be invited to complete the second survey after the end of the first semester, sometime early in January 2008. This survey will take about 15 minutes to complete.

After completing the second survey you will be invited to volunteer to participate in a focus group interview. The interview will examine in more depth your answers to the questions on the surveys. The focus group sessions are entirely voluntary and will run for approximately 1 hour.
There are no risks associated with participating in this study. There is no compensation for participation.

All personal information will be kept strictly confidential. No participant will be identifiable in any reporting of the findings, in the thesis or in relevant professional publications and conferences in the future. The information gathered from the surveys and interviews will be kept in strict confidence, securely stored and accessible only to my Thesis supervisor, Dr. Dan Lang, and me. At the end of the study all of the information collected will be fully destroyed.

Completing the survey will indicate your agreement to participate in this study.

If you have any questions concerning participation in this study, please contact the researcher, Valerie Lopes at 416-529-2684 or valerie.lopes@senecac.on.ca, or her thesis supervisor, Dr. Daniel Lang, at 416 – 923-6641 ext. 7116 or Room 6-278 OISE/UT, 252 Bloor Street West, Toronto, Ontario, M5S1V6 at any time.

This study has been approved by the Research Ethics Boards of the University of Toronto and Seneca College. If you have any questions related to your rights as a participant in this study please contact the Ethics Review Office at the University of Toronto at 416-946-3272 or ethics.review@utoronto.ca or Dr. Katharine Janzen, Associate Vice President Research & Innovation at Seneca College at katharine.janzen@senecac.on.ca or 416-491-5050 ext 3461.

Your participation in this study is very much appreciated.

Sincerely,
Valerie Lopes
Ph.D. Candidate, Theory and Policy Studies in Education
OISE/University of Toronto
Appendix G:
First Screen of Survey One

I have read and I understand the information in the Invitation to participate in this Research Study. I understand that the purpose of this study is to examine how My.Seneca affects learning.

I understand that participation in this study is voluntary and I can withdraw from the study at any time and for any reason. I can skip any question that I do not wish to answer.

By responding to this Survey I give my explicit consent to participate in this study.
(You must check this box before clicking on the 'NEXT' button to begin the survey).

If you have any questions about this survey please contact Dan Lang at dan.lang@utoronto.ca, Katharine Janzen at katharine.janzen@senecac.on.ca or Valerie Lopes at valerie.lopes@senecac.on.ca

Once again thank you for your assistance and participation in this study.
Appendix J:
Student Flyer - Second Survey

My.Seneca and Learning
Second Semester Survey

You are invited to participate in a research study about the affect of My.Seneca on learning.

You will receive an email from Seneca College Survey with the subject My.Seneca and Learning and a link to a survey. It would be very much appreciated if you would participate in the study by completing the survey.

The purpose of this survey is to find out about your experiences with the use of My.Seneca course sites during the first semester. Your answers to the survey questions will assist in the understanding of the ways in which My.Seneca may be used to enhance your learning experience at the college.

If you have any questions or would like more information about the study please contact Valerie Lopes – valerie.lopes@senecac.on.ca, 416-491-5050 ext 2111 or Rm B2054 at Newnham Campus.

Thank You!!
Appendix K:
Email to Faculty re Distribution of Student Flyer

Dear

With the approval of the Seneca Ethics Review Board I am conducting a research study about the efficacy of a Course Management System in Learning. The purpose of my study is to explore how, when, why and under what conditions the use of a course management system, i.e., My.Seneca/Blackboard, affects learning as perceived by students and faculty. As part of that study the students in the second semester of the three year Business Diploma Programs are being invited to complete an online survey and to participate in focus group interviews.

I am asking for your help to distribute to the students, by Friday January 11th, the invitation to participate in this study. A copy of the text of the flyer is attached. The faculty who are teaching either ACC106 or ACC220 are being asked for assistance in distributing the flyer as all of the students, in the second semester of the three year programs, are required to be enrolled in either one of these subjects. I will ensure that the flyers are in your mailbox by Monday January 7th or Tuesday January 8th. Please distribute the flyer to the students without explanation or lengthy comment.

If you prefer, I could come to your class to give the flyers to the students at a time that would be most convenient for you. Please let me know what would work best for you. If the students have any questions about the survey or the research please ask them to contact me.

The link to the survey will be emailed to the students on Thursday January 10th and they have until Monday January 28th to complete the survey.

I sincerely appreciate your assistance with this and thank you very much for your support. If you have any questions or would like more information please do not hesitate to let me know.

Sincerely,
Valerie Lopes
Appendix L:
Students - Email Invitation - Survey Two

Dear Student

Welcome back. I hope you enjoyed your break, and are looking forward to a new semester.

You are invited to participate in the second phase of this study which explores how, when, why and under what conditions the use of My.Seneca, in some courses, affects learning. The research findings will increase our understanding of the impact of My.Seneca on learning.

The survey is being administered by The Office of Institutional Research and Planning at Seneca but only I, the researcher, will have access to the anonymous results and your responses will not, in any way, become part of your student record.

By completing the survey you are agreeing to participate in the study as described in the Letter of Invitation [Link to Letter].

Please click on the link below to access the survey.

[My.Seneca and Learning – Second Semester Survey]

Please submit the survey responses before Monday January 28th, 2008.

I appreciate your time and participation in this research study. If you have any questions about this survey please contact Valerie Lopes at valerie.lopes@senecac.on.ca or 416-491-5050 ext 2111 or Dr. Dan Lang dan.lang@utoronto.ca or 416-978-1246

Thank you very much.
Appendix M:
Students - Email Invitation to Participate in Focus Group Interviews

Hello

Thank you very much for completing the My.Seneca and Learning Second Semester Survey and for volunteering to participate in a focus group interview.

The interviews will be held in the Boardroom which is located at the back of the computing commons at Newnham. You can ask at the student help desk for directions to the room. As a token of appreciation for your participation in these sessions pizza, cookies and pop will be served at the end of the session.

The times and dates of the sessions are:

Tuesday March 4th from 11:45 - 12:45
Thursday March 6th from 12:35 - 1:30
Wednesday March 12th from 11:45 - 12:45
There will be more sessions added, if they are needed.

The session will take approximately 45 minutes and participation is voluntary. You may leave the session at any time and you may choose whether or not you wish to answer the questions. You will not be evaluated in any way.

Please let me know, by return email, which session you will attend so that I can order the right amount of pizza. If you are unable to attend any of the sessions listed above please let me know a time and date that you would prefer.

Thank you for your time and your willingness to participate in the study. I look forward to meeting you at the focus group.

Sincerely,
Valerie Lopes
Appendix N:

Students Follow up Email Invitation to Participate in Focus Group Interviews

Dear Student

Please let me know if you are able to attend any of the following focus group sessions:

Tuesday March 4th from 11:45 - 12:45
Thursday March 6th from 12:35 - 1:30
Monday March 10th from 1:00 - 2:00
Wednesday March 12th from 11:45 - 12:45

We will meet in my office which is in Room B2054, located in the hallway at the back of the computing commons. You may ask for directions at the student help desk.

Thank you for volunteering and I look forward to meeting you.
Valerie
Appendix O:
Students, Faculty and CMS Advisers - Interview Consent Forms

Title of Study: The Efficacy of a Course Management System in Learning – Perceptions of Students and Faculty in one Ontario College

Researchers: Valerie Lopes (Doctoral Student)
              Dr. Dan Lang (Thesis Supervisor)

Name of Participant: ____________________________

The purposes of this research have been clearly explained.
I agree to participate in this study.
My signature below indicates that I have voluntarily decided to participate in this research project and that I have read and understand the information provided above.

__________________________    __________________________
Participant’s Signature  Date

I would like to receive a copy of the Final Report: yes ___ no ______

I have fully explained the purposes of this study to the above participant.

__________________________    __________________________
Valerie Lopes- Researcher  Date

Please keep a copy of this form for your records.

CONSENT TO AUDIOTAPE

_____ I agree to have the interview session audio-taped.

_____ I do not agree to have the interview session audio-taped

I understand that I will only be identified by a previously assigned code in any transcripts or any further reporting of the data collected at this Interview Session. Only the researcher will have access to the codes and the corresponding names of the participants.

Please keep a copy of this form for your records.

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Appendix P:
Faculty - Email Invitation

Dear Colleague,

Re: Research Study - The Efficacy of a Course Management System in Learning - Perceptions of Students and Faculty in one Ontario College

You are invited to participate in a research study which seeks to gather information about the perceptions of students and faculty at Seneca College regarding the efficacy of a Course Management System (Blackboard/My.Seneca) in learning. The study aims to explore the perceptions of faculty, teaching the students who are enrolled in the first semester of the three year business diploma programs, who are new to using My.Seneca/Blackboard, those who are experienced users and those who do not use the course sites.

A letter explaining this research study and the terms of consent to take part in this study are attached to this email. If you have any difficulty opening the attachments or if you have any questions please do not hesitate to contact me, at valerie.lopes@senecac.on.ca or 416-529-2684.

If you are willing to volunteer to participate in this research study please send an email to valerie.lopes@senecac.on.ca and I will contact you to set up a time and place to conduct the interview.

Your participation would be very much appreciated.

Sincerely,

Valerie Lopes
Ph.D. Candidate, Theory and Policy Studies in Education
Ontario Institute for Studies in Education - University of Toronto.
Appendix Q:
Faculty - Letter of Information

Title of Study: The Efficacy of a Course Management System in Learning – Perceptions of Students and Faculty in one Ontario College

Researchers: Valerie Lopes (Doctoral Student)
Dr. Dan Lang (Thesis Supervisor)

Institutional Affiliation
The researcher, Valerie Lopes, is a professor at Seneca College and a graduate student in the Doctoral Program in the Department of Theory and Policy Studies at the Ontario Institute for Studies in Education at the University of Toronto. This research is being conducted in partial fulfillment of degree requirements at the University of Toronto.

Purpose of the research
The purpose of this study is to explore how, when, why and under what conditions the use of a course management system (CMS) (Blackboard) affects learning as perceived by students and faculty. The contexts and the ways in which a CMS are being used in the classroom will be examined and the characteristics of a CMS that enhance learning as well as those that impede or create a barrier to learning will be explored.

Participation in the research
You are invited to participate in this study because you are teaching students enrolled in the first semester of the three-year Business diploma programs. The study will consist of an interview with the participants at a time and place that is convenient for each participant. The Interview will take approximately 1 hour.

Participation in this research is voluntary. You may refuse to participate or you may withdraw from this study, at any time and for any reason. There will be no value judgments placed on the answers to the interview questions. During the Interview you may decline to answer any of the questions at any time and for any reason.

Confidentiality
With the participants permission, the interviews will be audio-taped and the tapes will be transcribed. The tapes and the transcripts will be identified by previously assigned code numbers only. The information gathered from the surveys and interviews will be stored at a secure location. My Thesis supervisor, Dr. Dan Lang, and I will be the only people who will have access to these coded transcripts. The audiotapes will not be played for any reason other than to do this study. The tapes and transcripts will be stored securely and when the study is complete, the tapes and transcripts will be destroyed. All personal data will be kept strictly confidential.

The results of this research will be submitted for publication in scholarly publications and will be presented at conferences. Real names will not be used in any written report. Your identity will
never be revealed. Your responses will be included only in aggregate summaries and tabulations.

**Risks and Benefits**

There are no anticipated risks. This goal of this research study is to gain a better understanding of the characteristics of a CMS that impact learning is essential to understanding the issues surrounding the use of technology and to realize its promise of enhancing learning. It is the intent that the findings of this study can be used to develop a synergy between traditional teaching and learning practices and those enabled by technology so that the learning environment on college campuses will engage our students and motivate them to succeed.

**Compensation**

There is no compensation for participation in this study.

**Contact Information**

If you have any questions concerning participation in this study, you may contact the researcher, Valerie Lopes at 416-529-2684 or valerie.lopes@senecac.on.ca at any time or her supervisor Dr. Dan Lang at 416-923-6641 ext. 7116 or Room 6-278 OISE/UT, 252 Bloor Street West, Toronto, Ontario, M5S 1V6.

This study has been approved and has received ethical approval through the Research Ethics Boards of the University of Toronto and Seneca College. For information regarding your rights as a participant you may contact the Ethics Review Office at the University of Toronto at 416-946-3273 or ethics.review@utoronto.ca or Dr. Katharine Janzen, Associate Vice President, Research and Innovation at 416-491-5050 ext. 3461 or Katharine.janzen@senecac.on.ca
Appendix R:

CMS Advisers - Email Invitation

Dear Colleague,

Re: Research Study - The Efficacy of a Course Management System in Learning - Perceptions of Students and Faculty in one Ontario College

You are invited to participate in a research study which seeks to explore the efficacy of My.Seneca/Blackboard in Learning. In addition to gathering the perceptions of students and faculty about the impact of Blackboard on learning, the study also aims to gather information about the adoption and implementation of Blackboard at the college.

A letter explaining this research study and the terms of consent to take part in this study are attached to this email.

If you have any difficulty opening the attachments or if you have any questions please do not hesitate to contact me, at valerie.lopes@senecac.on.ca or 416-529-2684.

If you are willing to volunteer to participate in this research study please send an email to valerie.lopes@senecac.on.ca and you will be contacted to set up a time and place to conduct the interview.

Your participation would be very much appreciated.

Sincerely,

Valerie Lopes

Valerie Lopes
Ph.D. Candidate, Theory and Policy Studies in Education
Ontario Institute for Studies in Education - University of Toronto.
Appendix S:
CMS Advisers - Letter of Information

Title of Study: The Efficacy of a Course Management System in Learning – Perceptions of Students and Faculty in one Ontario College

Researchers: Valerie Lopes (Doctoral Student)  
Dr. Dan Lang (Thesis Supervisor)

Institutional Affiliation
The researcher, Valerie Lopes, is a professor at Seneca College and a graduate student in the Doctoral Program in the Department of Theory and Policy Studies at the Ontario Institute for Studies in Education at the University of Toronto. This research is being conducted in partial fulfillment of degree requirements at the University of Toronto.

Purpose of the research
The purpose of this study is to explore how, when, why and under what conditions the use of a course management system (CMS) (Blackboard) affects learning as perceived by students and faculty. The contexts and the ways in which a CMS are being used in the classroom will be examined and the characteristics of a CMS that enhance learning as well as those that impede or create a barrier to learning will be explored.

Participation in the research
You are invited to participate in this study because of your involvement in the selection, adoption and or implementation of the CMS. The study will consist of an interview with the participants at a time and place that is convenient for each participant. The Interview will take approximately 1 hour.

Participation in this research is voluntary. You may refuse to participate or you may withdraw from this study, at any time and for any reason. There will be no value judgments placed on the answers to the interview questions. During the Interview you may decline to answer any of the questions at any time and for any reason.

Confidentiality
With the participants’ permission, the interviews will be audio-taped and the tapes will be transcribed. The tapes and the transcripts will be identified by previously assigned code numbers only. The information gathered from the surveys and interviews will be stored at a secure location. My Thesis supervisor, Dr. Dan Lang, and I will be the only people who will have access to these coded transcripts. The audiotapes will not be played for any reason other than to do this study. The tapes and transcripts will be stored securely and when the study is complete, the tapes and transcripts will be destroyed. All personal data will be kept strictly confidential.

The results of this research will be submitted for publication in scholarly publications and will be presented at conferences. Real names will not be used in any written report. Your identity will
never be revealed. Your responses will be included only in aggregate summaries and tabulations.

**Risks and Benefits**
There are no anticipated risks. This goal of this research study is to gain a better understanding of the characteristics of a CMS that impact learning is essential to understanding the issues surrounding the use of technology and to realize its promise of enhancing learning. It is the intent that the findings of this study can be used to develop a synergy between traditional teaching and learning practices and those enabled by technology so that the learning environment on college campuses will engage our students and motivate them to succeed.

**Compensation**
There is no compensation for participation in this study

**Contact Information**
If you have any questions concerning participation in this study, you may contact the researcher, Valerie Lopes at 416-529-2684 or valerie.lopes@senecac.on.ca at any time or her supervisor Dr. Dan Lang at 416-923-6641 ext. 7116 or Room 6-278 OISE/UT, 252 Bloor Street West, Toronto, Ontario, M5S 1V6.

This study has been approved and has received ethical approval through the Research Ethics Boards of the University of Toronto and Seneca College. For information regarding your rights as a participant you may contact the Ethics Review Office at the University of Toronto at 416-946-3273 or ethics.review@utoronto.ca or Dr. Katharine Janzen, Associate Vice President, Research and Innovation at 416-491-5050 ext. 3461 or Katharine.janzen@senecac.on.ca
Appendix T:
Transcriber's Confidentiality Agreement

Title of Study: The Efficacy of a Course Management System in Learning – Perceptions of Students and Faculty in one Ontario College

Researchers: Valerie Lopes (Doctoral Student)
Dr. Dan Lang (Thesis Supervisor)

TRANSCRIBER'S CONFIDENTIALITY AGREEMENT

As a transcribing typist of this research study, I understand that I will be hearing tapes of confidential interviews. The information on these tapes has been revealed by research participants who participated in this project on good faith that their interviews would remain strictly confidential. I understand that I have a responsibility to honor this confidentially agreement.

I hereby agree not to share any information on these tapes with anyone except the researchers, Valerie Lopes and Dr. Dan Lang, of this project. Any violation of this agreement would constitute a serious breach of ethical standards, and I pledge not to do so.

Signature of Transcribing Typist ___________________________ Date ___________________________