FACULTY AND STAFF PERCEPTIONS OF UNIVERSITY SUPPORT FOR INSTRUCTIONAL TECHNOLOGY

A Thesis Submitted to the College of Graduate Studies and Research
in Partial Fulfillment of the Requirements for the Degree of Master of Education in the Department of Education
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ABSTRACT

This study explored the experiences of faculty and support staff as they worked collaboratively to integrate technology with teaching and learning into university classrooms. Interviews were held with faculty, administrators and support staff in order to gather insight into the extent of instructional technology support within the institution. The purpose of this study was to describe the existing environment in which faculty of one university attempt to integrate technology into teaching and learning and to recommend approaches that will lead to the sustainable administrative and technical support of technology integration.

Initially, the study focused on gathering insight into prescriptive approaches towards the development of sustainable instructional technology support for the institution. However, it soon became clear that a deeper look at political environment would provide more relevance. The study is able to provide evidence on the importance of a supportive and collaborative vision for nurturing instructional technology initiatives. The study provides recommendations to support the establishment of a collaborative institutional vision for instructional technology, to advance collaborative and individual initiatives, to improve administrative support for technology related activities and to improve teaching and learning throughout the institution through the intentional and thoughtful use of technology.
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CHAPTER ONE – INTRODUCTION TO THE STUDY

1.1 Background

In the late 1960’s, Arthur C. Clarke wrote, “Any sufficiently advanced technology is indistinguishable from magic” (1960, p.17). Almost 40 years later, I have concluded that the role of technology in the classroom, ideally, should share this quality. Yet the circumstances surrounding teaching and learning with technology in higher education today, are far from magical. Professors struggle to learn new skills and adapt their teachings styles, professional development programs fall short and resulting papers (and books) are written to diagnose and remedy this institutional malady. Researchers, administrators and instructors alike are now realizing the tremendous investments (people, time, resources) that are necessary to produce the reality of the instructional magician.

Today, higher education is under enormous pressure to compete in an ever-evolving information-based economy, as well as in an expanding, competitive marketplace for both public and private educational institutions. Universities continue to deliberate between the marvels and promise of new technologies, and the fear of costly investment without the demonstration of measurable results. This precarious stance often leaves the soul of the institution, the act and process of teaching and learning, unsupported and vulnerable.
1.2 The Problem

Few would disagree that technology, if used appropriately, can enhance teaching and learning in higher education. However, the appropriate integration of technology into the classroom is not a simple process. Faculty require institutional support for professional development and to provide a stable technical infrastructure to assist in the research, production and facilitation of appropriate educational materials. Perhaps institutions need to recognize the time and effort involved in the process, and provide both solid support and worthy incentives to encourage faculty to participate.

While at one time a deep resistance to technology may have been based on faculty being unconvinced of the positive role of such tools in the classroom, today much of the struggle resides in faculty's lack of confidence that they will receive support. Rickard (1999) writes, “The resistance can be characterized by a lack of faith that institutions are supporting faculty in their efforts to transform learning through information technology” (p. 43). If educational institutions are to be successful in attracting and retaining the 21st century learner, credible administrative and technical support must be established and sustained to restore the faith of the faculty. Acknowledging this important idea, it is the purpose of this thesis to describe the existing environment in which faculty and staff of one institution attempt to integrate technology into teaching and learning and to further recommend approaches that
will lead to sustainable administrative and technical support of technology integration.

1.3 Personal Perspective

I approached this study as someone who has been heavily involved in the areas of teaching and instructional technology. I received my Bachelor of Education from the University of Saskatchewan in 1993 and have taught high school, middle years and elementary students for several years. While my pre-service education focused primarily on English literature and history, once I entered the schools, I was given the responsibility of computer network manager and subsequently taught the Computer Science and Computer Literacy courses for grades eight through twelve. Soon after, I found myself teaching off-campus university courses in Computer Science at the undergraduate level. Several other positions emerged over the years that placed me both as an instructor and as a key technical support person for various colleges and schools.

Through my teaching experience, I have gained two worlds of understanding. First, I have learned to improve my own teaching with technology. In this, I have begun to understand how technology affects the way teachers teach and the way in which learners learn. Second, and I believe this most relevant to the study, I have begun to understand how teachers are affected by these new technologies and have also
learned how to better support the concerns and issues that frequently arise. Most importantly, I have realized that these concerns and issues are more frequently human issues and not solely issues of technology.

My recent role as an Instructional Technology Coordinator in a Faculty of Education at a Canadian University, has led me to realize that there is a common inadequacy regarding the support for faculty who are attempting to realize the potential of instructional technology to support pedagogy. Faculty are attempting to use technology in a number of innovative ways within teaching, yet they often feel a lack of support. Through sound research coupled with my experience as a facilitator, teacher and support technician, I seek to identify and isolate these inadequacies and to provide recommendations for the improvement of instructional technology support services at this institution.

1.4 Importance and Outline of the Study

This research is relevant in a number of ways and to several parties. To faculty, sound research in this area will allow professors to better understand their relationship with instructional technologies and with the institution. In turn, professors will be better able to relate how institutional support and a shared academic vision for technology integration impacts methodologies concerning teaching and learning with technology. With the improvement of these methodologies, students will be better served by innovative faculty and support staff. Additionally,
this institution will be better prepared to discuss the support and leadership issues surrounding the appropriate use and integration of technology in higher education. And personally, I believe that the study will allow for the development of my own understanding in the field of instructional technology. As a result, I will be better able to design and implement a professional development model for faculty colleagues, and be better informed to promote and support technology-enhanced learning initiatives within my own institution.

In the second chapter, characteristics are identified which are common to institutions that integrate technology well. Best practice literature in regards to the integration of technology into teaching and learning is reviewed.

The third chapter describes the procedures and methods that were used for this study. More specifically, it explains the criteria used to select the study participants and describes the interview process.

The fourth chapter provides the data analysis and gives the reader a better understanding of the key ideas gathered from the research. This is accomplished primarily through the sharing of the participant interview data.

The fifth chapter presents issues that arise from the data analysis. Here, the shared experiences of the participants are brought together. These experiences are combined with my own views and experiences, and recommendations for instructional support services are generated.
The sixth chapter summarizes my personal reflections regarding the research. This includes insight into what was personally learned from the research as well as my perceived growth as a researcher. A section outlining questions for further research concludes this chapter.

With the combination of a thorough literature review, solid analysis of the interview data and my own extensive experience in this area, I believe that this study will be useful in analyzing our existing University environment. Through such grounded and purposeful research, I will be able to provide recommendations for the growth, support and sustainability of such practice.
CHAPTER TWO – REVIEW OF THE LITERATURE

2.1 Introduction

It is the purpose of this thesis to describe the existing environment in which faculty and staff of one institution attempt to integrate technology into teaching and learning and to recommend approaches that will lead to sustainable administrative and technical support of technology integration. In relation to this purpose, the literature review identifies and examines literature currently available related to best practice institutions, but more specifically it attempts to identify the common characteristics of the environments surrounding best practice in the use of technology in teaching and learning. From this point, the chapter moves on to examine literature fundamental to better understanding and identifying support needed in higher education for the integration of instructional technology into the classroom.

I found it quite difficult to find journal articles or other refereed publications relating specifically to the identification or comparison of best practice methodologies in higher education. I was expecting volumes of literature touting specific instructional methods or perhaps an array of reflective professional anecdotes regarding successful integration activities specific to instructional technology. I was surprised and disappointed.
2.2 Searching for the Right Answers

The turning point in my literature search was an article concerning "asking the right questions" by Stephen C. Ehrmann (1995). Ehrmann suggests that too many useless questions are being asked about technology, teaching and learning in higher education, and that if comparisons are to be made in teaching methods, researchers must start asking different questions. Such useless questions seek universal answers. An example of such a question might be “Do computers do a better job of helping faculty teach English composition than traditional methods?” Ehrmann responds:

The question assumes that education operates something like a machine, and that each college or faculty is a slightly different version of the same “ideal” machine. In questions like these, the term “traditional methods” is used to represent some widely practiced method that presumably has predictable, acceptable results. “If technology performs better than traditional methods,” such questions imply, “everyone should use it”. A neat picture, but “traditional methods” is a concept that doesn’t define the higher education ... revealed by research (p. 1).

I believe that this perspective is important as it reminds the reader that higher education is not so uniform and standardized that any type of innovation can be reasonably compared to a traditional method without stating explicitly the materials, methods and motives for the instruction. So in determining which are best practices, I am aware of the fact that such practices are embedded in the instructional goals and outcomes of the environment, and cannot be entirely generalized to another environment.
The Ehrmann article was also significant because it raised the issue of whether or not media in itself influences the learning process. I found this reminiscent of Richard Clarke’s article *Reconsidering research on learning from media* (1983). Clark concludes “…media do not influence learning under any conditions”. Rather, “… media are mere vehicles that deliver instruction but do not influence student achievement any more than the truck that delivers our groceries causes changes in our nutrition” (p. 445).

Clark’s article attracted considerable controversy in the educational technology field regarding this stance. I do not agree with Clark entirely, however, I do concur with a particular retort to Clark from Robert B. Kozma (1994). The author does not negate entirely what Clark concludes, however, he reworks the question we must ask ourselves. “Perhaps the appropriate question is not *do* but *will* media influence learning” (p. 7). He then continues:

If there is no relationship between media and learning, it may be because we have not yet *made* one. If we do not understand the relationship between media and learning, quite likely one will not be made. And finally, if we preclude consideration of a relationship in our theory and research by conceptualizing media as ‘mere vehicles’, we are likely never to understand the potential for such a relationship. (p.7)

This type of thought is relevant for understanding best practice in teaching and learning with technology. There is a school of thought that considers instruction exemplary if technology is used to transform pedagogy (Reeves, 1997; Duffy & Jonassen, 1992; Rieber, 1992). I
believe that if one is to truly recognize best practice, one needs to consider how instructors are using the tools to reshape their conceptions of the principles, philosophies and methods of teaching and learning.

2.3 The Current Context for Teaching and Learning

The emergence of various technological tools and systems has brought challenges and opportunities to higher education. With the exception of distributed learning technologies, in many higher education classrooms, there has been only modest change regarding instructional activities. Literature supports the potential of pedagogical change due to advent of such technologies (Becker & Ravitz, 1999), in most environments technology has served only as an add-on to existing practice. Carter and Winship (1999) suggest, “Simply adding on technology to existing educational structures, not only fails to exploit the full educational potential of technology, it can increase the cost of education” (1999, p. 39). Ironically, what may be more of a concern to contemporary educational administrators is the overall cost inefficiency this produces, rather than the addition of educational value.

What is conspicuously lacking in the literature ... is an educational rationale, which both supports and justifies technologically enhanced modes of teaching and learning. To date justifications for the use of technology have been based either on arguments of the technology itself (the technology is able to do such and such and therefore must be used), or of budgetary and fiscal considerations (the technology can reduce the costs of education), or of competitive arguments (institutions which use the technology will be the winners in the competitive marketplace) or a combination of these arguments. A rationale is needed which is founded on
educational arguments based on relevant education theory and practice informed by the best research. (Carter, Winship, 1999, p. 39)

Carter and Winship (1999) provide a strong argument. Although not mentioned in their research, one could look back to the rapid adoption of instructional television (ITV) in the 1960’s, and find higher education in a very similar situation as we find ourselves today. ITV had a great theoretical appeal, especially fiscally; the ability to teach to the masses at a lower cost, and in its ability to reach non-traditional students. “But instructional television failed to fulfill the hype about changing the face of education, and is now only used in limited ways in college classrooms” (Neal, 1998, p. 1).

The dull and boring videotaped lectures of the 1960’s were uninspiring and non-interactive. From my experience, I believe that many institutions have adopted potentially interactive web technologies to do little more than what ITV did over 30 years ago. Whether these web-based technologies are designed for the classroom, or served at a distance, in many cases, the delivery model does not change. Even with the advent of live televised lectures or two-way audio and video, the quality and extent of interactivity does not approach the quality found in some traditional classrooms.

It seems that most arguments for institutional change are not based on learner-centred ideologies, but rather focus on the Information Age marketplace. In attempting to satisfy both arguments, Dolence and
Norris (1995) place the focus rigidly on the learner in their conception of the evolutionary process. Here, they raise three important questions concerning institutions and their perceived willingness to adapt to an Information Age model.

First, ‘Is today’s Industrial Age educational model appropriate to the learning needs of the Information Age – for either traditional learners or learners in the workplace?’

Second, ‘Is society willing to pay for the 20th century ‘Industrial Age’ model in the 21st century ‘Information Age’?’

And third, ‘Can academe afford to miss the opportunity of reshaping itself to serve the emerging needs of the Information Age learner?’ If the answers to these questions are ‘no’, then genuine transformation is the only acceptable metaphor for bringing postsecondary education into alignment with the emerging needs of learners and society in the Information Age. (Norris, 1995, p.12)

This is not a new but a very relevant argument. In fact, it was Bates (1993), two years earlier, who predicted a similar situation for higher education, and proposed that only three choices were available to administrators of higher education institutions. These tough choices include:

1. an extension of the status quo; technology as an add on to current institutions; marginalized, unequal in provision; elitist; 70% of population cut off from technology and knowledge; this is not really an option - the system is already cracking;

2. knowledge in a box or through a tap: an increasingly centralized, impersonal education system, machine-driven, with knowledge treated as property and owned by large multi-national companies: this is a real possibility;

3. networked society, with equal access to knowledge and information, humanistic applications of technology; communities and individuals in charge of their learning environments; government, educators and the private sector
working in partnership; an education and training system delivering the skills and knowledge needed for a free and prosperous society in the 21st century. (Bates, 1993, p.2)

It is the third condition that most academics would agree to be the only viable and reasonable choice.

2.4 An Ideal Climate for Teaching and Learning

In the call for active learning, John Amos Comenius wrote, "Let the main object of our didactic be to seek and find a method of instruction by which teachers may teach less so that learners may learn more" (in Munroe, 1921, p. 32). Although the literature recognizing the potential for active learning is not new, the push for its realization has increased in recent years, possibly due to the potential of technology to engage independent learners.

In 1987, Chickering & Gamson proposed “Seven principles for good practice in undergraduate education”. These principles have since been adopted by a number of institutions, and have been accepted as a solid foundation to support the further development of good practice. The principles themselves are based on a view of education as active, cooperative and demanding, and assert that good practice in undergraduate education:

- encourages student-faculty contact;
- encourages cooperation among students;
- encourages active learning;
- gives prompt feedback;
- emphasizes time on task;
Much has changed since 1987 in terms of the advancement of new communication and information technologies and their prevalence in higher education. Chickering and Ehrmann (1994) advance the argument and application of the Seven Principles to contemporary higher education institutions (see Table 1).

<table>
<thead>
<tr>
<th>Principle</th>
<th>Technology As Enabler</th>
</tr>
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<tr>
<td>1. Good practice encourages contacts between students and faculty.</td>
<td>-email, discussion forums, instant messengers, chat tools, and other synchronous and asynchronous communication technologies allow faculty and students to interact outside of specified contact hours. -such communication seen by students as more intimate, protected and convenient than the often intimidating and time-limited face-to-face meetings.</td>
</tr>
<tr>
<td>2. Good practice develops reciprocity and cooperation among students.</td>
<td>-asynchronous and synchronous technologies enable students to better communicate, collaborate, and remain in contact. -software technologies (WebCT, BlackBoard) may help to establish a community of learners ideal. -in some situations, where students may NEVER meet, technology is often the only reasonable enabler for this principle.</td>
</tr>
<tr>
<td>3. Good practice uses active learning techniques.</td>
<td>-many technologies encourage active learning -three main categories include: tools and resources for learning by doing, time-delayed exchange, and real-time conversation. -most common types of active learning can be supported by what Ehrmann calls “Worldware” (i.e., software that was developed for other purposes such as word processing, spreadsheets, etc., but can be used to enhance instruction. -simulation also an excellent active learning tool.</td>
</tr>
</tbody>
</table>
- video-recording for instant review or critique or analysis of data or performance.  
- word processors used as advanced reviewing tools (e.g., using the hidden review options)  
- excellent role for portfolio evaluation and assessment strategies to track on-going growth and development of students. |
|---|---|
| 5. Good practice emphasizes time on task. | - connectedness ideal is allows student searching and work efforts to become more efficient.  
- less time is spent by students commuting, moving around campus, etc., where access of materials is central and easily accessible.  
- computers can track a picture of student participation efforts and relay to instructor. |
| 6. Good practice communicates high expectations. | - significant real-life problems, conflicting perspectives, or paradoxical data sets, can often be expressed efficiently through technology tools.  
- students report added expectations due to instantaneous publishing of work (www) to be viewed by the instructor and peers.  
- the world-wide-web provides an excellent venue for peer evaluation activities. |
| 7. Good practice respects diverse talents and ways of learning. | - technology and communication tools can offer direct, vicarious, and virtual experiences for students.  
- technology may drive self-reflection and self-evaluation.  
- “Technologies can help students learn in ways they find most effective and broaden their repertoires for learning” (p. 4). |

**Table 1:** The application of Chickering and Gamson’s Seven Principles to technology-enhanced learning environments.
2.5 Education in the Systemic View

This study goes beyond the pedagogical focus reviewed in the previous sections. It became clear early in the study that decisions made around technology in the University can affect all stakeholders. This drew me to literature regarding the systemic view of technology and change. A clear principle of this view is that the diverse needs of participants within the University must be recognized. In *Diffusion of Innovations*, Rogers (1995) writes, “a system is like a bowl of marbles: move any one of its elements and the positions of all the others are inevitably changed” (p. 419). Several years earlier, Hall and Horde (1987, p. 101) commented on the effects of the introduction of technology into an institution. To paraphrase, when technology is introduced in isolation it disturbs the rest of the system reducing the system’s effectiveness. As all systems ideally strive for equilibrium, each of the other components of the system now must exert more pressure to the invader (technology) to conform to the new requirements. Consequently, system change is not always implemented as the proponents had once envisioned. It is either not accepted at all by those within the system or it is integrated in ways that were not originally presumed.

The successful support and integration of technology within an institution is much more complicated than simply buying computers, equipping classrooms with the latest technology, hiring a few more support staff and then complacently expecting real change to occur.
Implementation strategies must be viewed to be in-line with the University's vision as an academic institution, and also must be directed to and supported by the entire system. Proponents for the implementation of technology in higher education must carefully consider the effects it will have on all components of the system and provide reasonable administrative, technical and professional measures to support these changes.

2.6 Perspectives and Key Questions for Higher Education

If technology is to become well implemented and considered effective in supporting best practice in higher education, there needs to be drastic institutional change in how faculty, support staff and how students are supported in their efforts. Maintaining the importance and interdependence of the educational system, there are several perspectives that need to be addressed to make this happen. Below are some central questions (adapted from Gilbert, Aiken, Bartelt, Hoffman, et al; 1995) that will help the reader understand the magnitude and the scope of the changes necessary.

**Student:** “Why aren’t all my courses using computers and preparing me for new careers?” Or alternatively, “Why I am paying so much tuition to work with computers rather than receive individual attention?”

**Faculty:** Which applications do I NEED to learn to help facilitate instruction to my students? Do I have to change the way I teach? How much will I have to change the way I teach? Who will help me
make these changes? If I do make these changes, how or will my career be advanced, or how might it be endangered?

**Administration (Financial):** What hard decisions need to be made to help our institution compete in the 21st century marketplace? How will technology dollars be funded?

**Administration (Academic):** How can we realistically expect and assist faculty in achieving their goals for teaching and learning? Does technology affect student learning? If so, how?

**Administration (Computing):** What information and communication technologies do we need to adopt to develop ubiquitous teaching and research opportunities for faculty and students? Should we, and if so, how can we plan towards the eventual virtuality of academic and research services?

**Head Librarian:** How can the library assist faculty and students in using digital information resources? What programs do we need to support the professional development of librarians? How does one fulfill both traditional roles of the librarian, and the emerging role of the cybrarian?

With so many diverse concerns, it is easy to see the type of challenges that institutions of higher education face. Many believe that the transformation of higher education and the integration of instructional technologies is inevitable. However, what is uncertain is where this journey will ultimately lead, and what it will cost.

2.7 Vision and Understanding the Purpose of Higher Education

There is currently a debate about whether or not the purpose of higher education institutions will fundamentally change. As educational institutions tend to change very gradually over time, it is very difficult to predict the outcome of the pressures of the global economy on the role of
universities. Yet there are those who remark cynically, “higher education hasn’t changed in a 100 years, why should it change now?” Here is how one critic responds:

As higher education becomes increasingly market driven, institutional success will increasingly depend on students’ perceptions of flexibility of access, quality of service and value for money. The institutional inertia that typifies many of the more traditional universities is likely to be an impediment to change, and could well lead to significant variations in the perceived status of higher education institutions. As one senior Australian bureaucrat put it recently, ‘The rooster can soon become the feather duster!’ (Taylor, 1998, p. 3)

The sentiment from the Australian bureaucrat seems to target the important question of why educational institutions should change. Yet, I am not entirely convinced that the presently voiced reasons for change (i.e., consequence of the competitive educational marketplace, higher student enrolments) are in fact reasonable to justify change. However, if the processes for change are already underway, the more appropriate focus would be research determining how higher education is currently changing. An example of such research comes from David Noble (1998). In Digital Diploma Mills, Noble identifies and discusses key changes that are occurring in higher education:

The major change to befall the universities over the last two decades has been the identification of the campus as a significant site of capital accumulation, a change in social perception which has resulted in the systematic conversion of intellectual activity into intellectual capital and, hence, intellectual property. (p. 3)

This study does not intend to review the purpose of higher education; that question is clearly beyond the scope of this research.
However, this important debate needs to be acknowledged and further discussed within the university community. The next section details one particular method of how conversation may be used to support the journey of establishing a University vision for instructional technology.

2.8 Conversation as a Medium for Change

Jenlink and Carr (1996) endorse the act of conversation as a significant and powerful medium for change. They identify the different purposes for conversation and they recognize design conversation as one that can facilitate positive transformation in educational systems. Here are six strategies prescribed for assisting in the creation of effective design conversations.

1) Make the commitment to change of the system rather than change within the system.
2) Identify and select a facilitator for systems design who will assist the stakeholders.
3) Identify the voices that are to be authentically represented.
4) Build the capacity of the participants to engage in the design conversation through creating a common language.
5) Engage in dialogues that unconceal the hidden tacit understanding and routines.
6) Focus on building a conscious collective mindfulness of community through a dialogue that creates a common sense of purpose and shared vision. (pp. 36-37)

These six strategies will be explored further in Chapter Five.
Professional development is also a key consideration for this research. Professional development strategies must be recognized at any time faculty or staff are expected to move through considerable change. As faculty and staff are often found at many different levels of technological competency, an individualized approach to professional development is often warranted. A good example of an individualized professional development model comes from Noon (1999). He has created the following four-stage model for technology adoption:

**Stage One: The Pre-Literate End User**
Educators in this stage are unfamiliar with technology. They typically have either never had an opportunity to adopt new technology or are uninterested in learning how to use it. The goal in this stage is to demonstrate what technology can do for them and to alleviate their fears.

**Stage Two: The Software Technician**
The second stage finds educators who are adept in several software programs and use them frequently for their own personal use. Word processing, Internet searching and e-mail are examples of applications they understand and use. The goal in this stage is to expand their applications skills and introduce the concepts of curriculum integration, such as using the Internet in lesson plans, online projects, and team teaching with educators worldwide.

**Stage Three: The Electronic Traditionalist**
The stage three educator enjoys technology, but work with students is limited to adding technology to traditional methods. The goal in this stage is to build upon the previous successes while modeling the new approaches to instruction that technology enables. Project based learning, team teaching and modeling advanced uses of technology are featured.

**Stage Four: The Techno-Constructivist**
The real goal for technology integration is an entirely new approach to teaching. Educators who are true techno-constructivists become coaches and models for the first three stages. (Noon, 1999, p. 4)
2.10 Synthesis of the Literature

A review of literature pertaining to institutional environments and the support of best practice in higher education made apparent several key issues. What is clear in the literature regarding technology and institutional change is that there are several common problems that are independent of the size of the institution. Four common problems identified in the literature were directly related to the purpose of this study.

1) Faculty reward system and incentives
The process of tenure and promotion in most colleges and universities is integral to the growth and development of the institution's research and teaching efforts. In most institutions the use of technology in teaching has been widely ignored. Efforts to address the situation, in most cases, have been inadequate. (Rowley, Lujan & Dolence, 1998)

2) Fragmented support for technology integration.
In many universities, there exists inadequate access to trained support staff and/or funding for technology initiatives and equipment. Due to such limitations, project management support related to course development can be limited in scope. Professors, in reaction to inconsistent or limited support are likely to work in isolation and less likely to collaborate with support staff. The resulting “Lone Ranger” initiatives are often poorly funded or poorly implemented. (Bates, 1999)

3) Institutional vision lacking regarding technology integration into teaching and learning activities.
Institutions, becoming more market oriented, continue to develop their efforts towards distance education and technology-enhanced learning. However, many institutions do so without a clear vision of how these efforts relate to the central institutional objectives and mission. Without a clear vision as to how technology may transform teaching and learning within the institution, the practice of running blindly is possibly more harmful than it is productive and may lead to high implementation costs without real benefits to student achievement or faculty productivity. (Rowley, Lujan & Dolence, 1998)
4) Faculty professional development largely skills-based
Many professional development programs fail due to the administrative misconception that if “you learn the skills, you will learn to use it appropriately.” Research does suggest that learning the skills is an integral part of the professional development of professors, however there is a much larger pedagogical vision that must be implemented and supported. The power of mentoring is one such strategy that seems to provide excellent results. (Gonzales, Hill, Leon, Orrantia, Saxton & de Montes, 1997)

The literature review failed to answer or give sufficient insight into an important aspect the research--how institutions should implement and support instructional uses of instructional technology. Although there are many examples of prescriptive and technical approaches to improving the quality of instructional technology support in specific institutions, many of these prescriptive approaches fail to acknowledge the political environments in which these changes must occur.

2.11 Research Categories and Questions
The four categories from section 2.10 have been reframed in this section to reflect the major focus of this study. I believe these four categories form a framework to examine the environment in which faculty attempt to integrated technology into teaching and learning.

1) Policies and Incentives (relating to the implementation of instructional technologies into the teaching and learning environment)

2) Distributive Support and Resources (available for the implementation of instructional technologies)

3) Institutional Vision Regarding Instructional Technologies (the implementation and how this Vision adapts to learner and institutional needs)
4) **Professional Development** (provisions for skills training and pedagogical adaptation)-

Subsequently, these four categories were used to frame the research questions for this study. They are:

**Research question 1:** What policies and incentives promote and support the instructional use of technology by faculty?

**Research question 2:** What distributive support and resources are available to promote and support the instructional use of technology by faculty?

**Research question 3:** Is there an institutional vision for the appropriate use and support of instructional technology?

**Research question 4:** What professional development provisions are available to promote and support the instructional use of technology by faculty?

The findings related to these questions will be discussed in Chapter Five.
CHAPTER THREE – THE RESEARCH PROCESS

3.1 Introduction

In this chapter, I will expand on the context underlying this research and outline the research methods and principles used for the study. To reiterate, the purpose of this research is to describe the existing environment in which faculty of one institution attempt to appropriately integrate technology into teaching and learning and to recommend approaches that will lead to sustainable administrative and technical support of technology integration. The guiding research questions, repeated from Chapter Two, follow:

Research question 1: What policies and incentives promote and support the instructional use of technology by faculty?

Research question 2: What distributive support and resources are available to promote and support the instructional use of technology by faculty?

Research question 3: Is there an institutional vision for the appropriate use and support of instructional technology?

Research question 4: What professional development provisions are available to promote and support the instructional use of technology by faculty?

3.2 Methodologies and Process

For this study, I used qualitative methodologies. More specifically, this study employs methods found to be typical of case study research. This methodology is typical of that illustrated by Bogden and Biklen.
Glesne and Peshkin (1992) identify characteristics that form case study research. These characteristics include:

- the need to tell a personal story;
- the understanding that reality is socially constructed;
- the study is naturalistic;
- the study searches for patterns; and
- the study includes a descriptive write-up.

Case studies rely heavily on the interpretation of the researcher to "provide rich descriptive data and draw insight from it" (Wilson, 2000, p. 5). Interviews and a common web-based forum (bulletin-board) were the primary methods of collecting data. It is the researcher’s assumption that the issues that were examined were relevant to the individual participants, to the institution and respective to the social and institutional structure as it currently exists. To quote Carr and Kemmis, “educational problems and issues may arise not only as individual matters, but as social matters requiring collective and common action if they are to be satisfactorily resolved” (1986, p. 31). It is the researcher’s belief that through the thorough analysis of the discourse relating to instructional technology, the researcher, the reader and the institution will become better informed about the political relationships that underlie our use and adoption of such technologies. Although, the study is institution-specific, other institutions will be able to use this piece to
help interpret their own situations regarding instructional technology and institutional change.

3.3 Interviews

Semi-structured interviews were held with expert participants and a group of innovative faculty members. A complete list of the guiding interview questions is included in Appendix E through Appendix J. An interview from at least one representative from each of Bates’ (1999) “instructional technology support levels” was held, and the data were transcribed and analyzed. Additionally, I added a library administrator to the interviewee list as I felt that the fundamental role of the library in regards to instructional technology is too often excluded from the literature. I felt that the role of the library especially in regard to information management is vital to a comprehensive model. Selection of the participants was facilitated through the creation of distinguishing guidelines (See Table 2). Desired characteristics were chosen primarily to ensure that the interviewees could in fact be viewed as experts in their respective areas. Although the notion of expert varies greatly, my belief from my experience was that five years of experience in these respective positions was adequate to provide the degree of relevance I desired from the data I would gather. However, two years of experience was chosen for the instructional designer for the primary reason being that it was impossible to find a candidate in that particular field in the subject.
university with that level of experience. I believe this to be only a minor limitation of the study.

<table>
<thead>
<tr>
<th><strong>Information technology administrator:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Minimum five years experience in a position of IT administration in a higher education institution.</td>
</tr>
<tr>
<td>- Direct experience in the management and implementation of information technology systems.</td>
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<table>
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<tr>
<th><strong>Educational technologist:</strong></th>
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<tbody>
<tr>
<td>- Minimum five years of experience in a supporting role in the development of enhanced and on-line courses using instructional technologies.</td>
</tr>
<tr>
<td>- Research experience in the role of IT in teaching and learning.</td>
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<tr>
<th><strong>Instructional designer:</strong></th>
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</thead>
<tbody>
<tr>
<td>- Minimum two years experience in the field of instructional design and has provided support of faculty instructional technology initiatives.</td>
</tr>
<tr>
<td>- Considered to work well with faculty in a project management and faculty support roles.</td>
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<table>
<thead>
<tr>
<th><strong>Innovative academic leader:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- In a position of academic leadership</td>
</tr>
<tr>
<td>- Minimum of five years experience in the institutional development of teaching and learning strategies and initiatives.</td>
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<table>
<thead>
<tr>
<th><strong>Library administrator:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Minimum five years of experience in the administration and support of instructional technology initiatives in higher education.</td>
</tr>
<tr>
<td>- Previous training in knowledge management and library administration theory.</td>
</tr>
</tbody>
</table>

**Table 2:** Selected characteristics of expert participants.
3.3.1 Faculty Extended Interviews

Additional interviews with faculty were held. Members of the group ultimately consisted of seven faculty members with varying degrees of involvement with technology. The group consisted of those who have adopted instructional technologies into their everyday teaching and learning to varying degrees. These participants were selected by their demonstrated innovation in teaching with or without the use of technology. The meeting with each participant included a semi-structured interview and a discussion of their expected involvement in the research. A WebCT bulletin board was constructed to create a discussion group forum for an extended interview. Participants had the opportunity to use the bulletin board to clarify what was previously communicated in the interview process, to post key questions or observations related to the study to other participants or to help answer previously posted questions.

3.3.2 Focus of the Interviews

The purpose of the interviews and the bulletin board was to determine what faculty members, administrators and technology support professionals identify as the biggest issues in supporting and sustaining the growth of instructional technology activities within the institution.
3.4 Delimitations

Several delimitations imposed by the researcher follow.

**Time:** The study was limited to a three-month period during a heavy winter semester. Due to the busy time of year, most participants would have been limited in their involvement in a more developmental type study. The study therefore is able to take a snap-shot of the lives of these participants and is not intended to show developmental experience beyond their own personal memories.

**Place:** While a similar study involving several universities would have proven relevant, the study was purposefully limited to the researcher’s home institution. This is warranted by a personal rationale for this research. In order to become more effective in my own position at this university, I felt that it was important to better understand the environment in which I teach, learn and research. From a better understanding of my own world, I would be better enabled to look critically at other institutions for future research.

**Scope:** The study was limited to four specific areas outlined in section 2.11 (policies and incentives, distributive support and resources, institutional vision regarding instructional technologies, professional development). Although the literature pointed to several other key issues, the focus was shortened to enable a sharper analysis of the areas chosen.

3.5 Results

Again, it is the purpose of this thesis to describe the existing environment in which faculty of one institution attempt to integrate technology into teaching and learning and to further recommend approaches that will lead to sustainable administrative and technical support of technology integration. Key insights emerged, especially in areas regarding individual and institutional roles and the facilitation of effective communication within the institution. The research was institution-specific, however the readers may be able to make
connections with their own institutions, be better able to understand the issues surrounding instructional technology in higher education and thus be able to initiate positive change in other institutional environments. It was not, however, an intention of this research to obtain findings that could be generalized to other settings.
CHAPTER FOUR: THE DATA

4.1 Introduction

The guiding research questions and the framework for analysis were used to examine the challenges faced by participants involved in the use of instructional technology within the institution. Data were collected during a series of interviews with faculty, administrators and support personnel. The data were analyzed for themes and patterns that reflected the relationships of each individual to the institution, the institutional bodies and instructional technologies.

This chapter focuses on describing, analyzing and categorizing data collected. As data became more understandable through the construction of a rich context, each participant and his or her individual role and efforts within the context of the institution will be elaborated. Through these descriptions, selected excerpts from interviews and a data analysis, I explore the thematic issues surrounding the support and sustainability of instructional technology within the institution and subsequently construct recommendations for change in chapter five.

The presentation of the findings employs a narrative format using direct quotations from the interviews with the participants. Rather than examining the dialogue of each participant individually, I have broken this analysis into two key areas: 1) current context; and 2) projected collaborative roles and relationships. From these two main areas, several sub-categories have evolved. As these categories have really been
plucked from the analysis of interviews, excerpts from the dialogues will be used to illustrate the themes. The researcher’s narrative will intertwine to provide direction, analysis and rationale. Relevant passages from the literature will be utilized when appropriate to strengthen and support the analysis.

A set of principles and practices have been established that appear in italics throughout the thesis and that are subsequently explored in Chapter Five. These principles are extracted primarily from personal notes taken during interviews and through the analysis of data and literature. The principles and practices inform the final recommendations and conclusions.

4.2 Framework for Analysis - Revisited

As was established in Chapter Three, participants were chosen to reflect Bates’ (1999) levels of instructional technology support (with the imposed addition of library support). I found this to be ideal for the selection of participants, however the resultant data were difficult to analyze within the limited context of these preset boundaries. In the interviews I had with the participants, much dialogue seemed to focus specifically on “the way things are” instead of “the way things should be”. As was stated in the previous section, two major streams for data analysis soon emerged: 1) current context; and 2) projected collaborative roles and relationships.
Within current context, several areas invited deeper analysis. Five main subcategories emerged within this section: 1) role of faculty; 2) perceptions of the role of technology; 3) perceptions of instructional technology support; 4) perceptions of administrative support; and 5) the standardization of campus technology. Within the frame of these subcategories, other significant, yet less prominent themes also emerged. These include common barriers/frustrations, the role of institutional policies, faculty autonomy and collaboration and technological hype versus the current technological reality.

Within the scope of the second main theme, projected collaborative roles and relationships, participants offered their expertise and thoughts on how the support for instructional technology should look within the institution. Through the careful analysis of these data, several major focus points emerged. These include: 1) faculty as (information) managers, facilitators, and critical (technology) users; 2) information literacy for faculty; 3) keeping faculty in the course; 4) the role of faculty professional development; 5) the role of library; and 6) the role of academic administration. Other sub-components of this structure include appropriate use of technology (best and emerging practice), learner-centric organization and the identifying and promoting strategies for positive change.

Yet underlying both major themes (current context and projected collaborative roles and relationships), there seemed to be a deeper idea
that continually reoccurred within the dialogues. The identification and analysis of the political climate within the institution proved key to the study. Although power relationships exist within any institution, what is perhaps less understood is how the issues surrounding technology affect the entire process behind its utilization, implementation and integration within the institution.

4.3 Introduction and Overview of the Participants

The following section will give a brief description of each participant involved in the study. As confidentiality was important in the study, each participant has been given a pseudonym. Descriptions of participant characteristics protect confidentiality, yet are informative and relevant to the study.

4.3.1 Garth – Educational Technology Administrator

Garth has been involved in adult education programs for over 30 years. Working in several different institutions within western Canada, Garth has educated and involved himself in several different distance-education programs. Garth’s post-secondary experience has focused on the administration and delivery of distance-education programs. Some of Garth’s research includes the identification and analysis of faculty attitudes towards distance education.

Garth: My interest has been the remote learner and in distance education and the problem of getting access for rural and remote people. (Interview, May 2, 2001)
4.3.2 BassTech – Instructional Designer

BassTech is one of the University’s key instructional designers. Although having very little theoretical background in instructional design methodologies, her Graduate degree in Linguistics and her ability to work extremely well with faculty have allowed her to work collaboratively and effectively in the design and delivery of on-line courses.

4.3.3 Uncle – Faculty and Teaching Development Leader

Uncle has been involved in the improvement of teaching within several institutions since approximately 1985. He holds a Ph.D. in English from a prestigious University and has taught English Literature and Composition with several institutions in western Canada. Uncle has been involved directly with adoption of instructional technologies for approximately five years within this institution through his role as head of the Centre for Instructional Development.

4.3.4 George – Information Technology Administrator

George has been involved in as an Information Technology Administrator for over three decades within the University context. Accomplishments include the development of a Computer Science Program as well as playing a fundamental role in the establishment of the institution’s current technology infrastructure. Although much of George’s effort has been directed towards the institutions internal development, under his direction strategic partnerships have been formed provincially, nationally and internationally.
4.3.5 Mark – Library Administrator

Mark has been a professional librarian for over sixteen years. In this time, he has held progressively more demanding administrative positions. His library experience is primarily within the specialized library environment. These factors have helped shape Mark’s role as an experienced collaborator within the University.

**Mark:** I have had specialized library experience which I think is relevant ...in that specialized libraries have an opportunity to work more closely with faculty on special projects to customize services and programs that the library offers, to meet special needs. (Interview, April 19, 2001)

4.3.6 Johnny – Faculty Member (Mathematics)

As a mathematician, Johnny has almost 20 years of experience in using computers in the classroom in innovative ways. Initiated by using the Apple II in statistics classes, this use has evolved most recently to collaboratively developing a major international mathematics website, as well as in developing and teaching a mathematics course on-line. Yet, Johnny remains critical and holds strong views on the appropriate and relevant use of technology.

**Johnny** (describing his current use of instructional technology): It’s dichotomous. I teach a Calculus class where I use absolutely no technology. And there there’s Math 151, which is totally online except for the final exam. (Interview, April 1, 2001)

4.3.7 Melissa – Faculty Member (Arts & Science)

Melissa has recently adopted instructional technology into her teaching as part of a pilot project to teach an on-line course. Working closely with an instructional design team, she has been able to
collaboratively develop this on-line course that had not been taught previously. Her experiences and insights are relevant to this study, as she has gone from using very little instructional technology in her classroom into teaching a totally technology-dependent course.

4.3.8 Sarah – Faculty Member (Education)

Sarah has had approximately seven years of experience in using instructional technology in teaching and learning environments. This experience comes primarily from several years of experience as an elementary teacher. Sarah has had recent experience in independently developing on-line materials for her courses and in taking a leadership role in establishing instructional technology policy and guidelines within her Faculty.

4.3.9 Brigitte – Faculty Member (Education)

For the last fourteen years, Brigitte has used instructional technology in her courses, as well as in her research. Some of her recent work includes helping teacher education students understand professional approaches to using IT in the classroom as well as developing a collaborative on-line course focusing on cross-cultural education. Brigitte continues to participate in Graduate level classes and research focusing on the effective use of instructional technology in the classroom.
4.3.10 Kannon – Faculty Member (Fine Arts)

As a newer faculty member, Kannon seems to find it somewhat easier to adapt to new instructional technologies. She has just recently completed teaching an on-line version of a History course using WebCT and Classpoint. Her experience with another major university provides insight into different models for instructional support.

4.3.11 Faith – Faculty Member (Education)

Faith has had a long and varied history in the University. Her experience with technology dates back beyond her use of a “hectograph” and as recent as her use of WebCT in the enhancement of a course in cross-cultural education. With many years of experience at both provincial K-12 schools and in post-secondary, Faith brings with her a very unique perspective on the support issues surrounding technology in the classroom.

4.3.12 Roy – Faculty Member (Arts & Science)

Roy has been an innovative faculty member in the development of on-line course materials. For several years, he has created lengthy web-based course materials to accompany advanced English literature courses that he teaches both on-line and face-to-face. Roy uses technology to enhance the role of the teacher in the classroom by creating accessible class materials, providing prompt feedback to student responses and viewing technology as a tool for improved communication.
between student and instructor. However, Roy does not see technology as purely a tool of change.

**Roy:** I am not sure I would use the word change. I would rather use the word augment, or enrich. You know, we can augment what we are already doing. How can we make it better? Because change might not necessarily be a good thing. (Interview, April 17, 2001)

### 4.4 The Current Context: “The World in Which They Live”

The title of this section is taken from a very memorable passage from an interview with Faith. I believe this to be an ideal starting point for this section. The data presented in the following section relates to faculty and staff perceptions of the current context for instructional technology support. Much of the interview data identify key characteristics of the environments in which faculty live and work.

During the analysis of the data from interviews, several key principles and practices were developed. These principles were developed through the synthesis of personal reflections (i.e., journal entries during the interview process), insight gathered from personal related experience and from literature supporting the respective ideas. These principles and practices have been placed appropriately throughout the text in sections 4.4 and 4.5. The principles are reconsidered in Chapter Five.

#### 4.4.1 The Role of Faculty: Collaboration, Autonomy and Time

**Faith:** You are going to have to be very clear about the nature of the job that is carried by the faculty member. It’s of tremendous complexity. It has tremendous demands, it’s – you know, ‘What’s the world in which they live?’ Your technician needs to know that, because your technician comes into that world and impinges on it,
and usually at times of crisis. So if your technician doesn’t understand that, this is the real crisis. (Interview, April 20, 2001)

Faith believes strongly in the importance of the technical support staff having a clear understanding of what it means to be a faculty member. Specifically, she believes support-staff need to understand the roles and responsibilities that are unique to the faculty position. It seems the perception of faculty from the perspective of non-faculty can be often negative. *A key concept in working more effectively and collaboratively is to first of all understand what the role of each individual is and to identify and understand the pressures of the academic environment* (Principle/Practice 1).

**Faith:** If you are not real careful, then these people (technical support staff) will think that faculty are idiots, faculty members are idiots, they are donkeys ... because it can look like ‘Well, he’s all upset because he can’t get two pages of his stupid book done today.’ Well, the guy has got a publisher with a deadline, he’s got a Dean sitting on his back saying ‘You’re not getting promoted’ ... and this may sound dumb to a technician, but it isn’t. (Interview April 20, 2001)

From the group of faculty interviewed, other comments emerged which seem to hint at faculty being under enormous time and work pressures in their daily activities. Here, Roy speaks of his most recent academic year and the time constraints that negatively affect the opportunity for professional development.

**Roy:** The other difficulty is time. During September through April – and I can’t speak for my colleagues – but I know I have hardly any time to do anything other than my teaching, my committee work, my seeing students and so on. I don’t have time, very often, to go off and spend three hours at some seminar on web design ... and you know, that’s the real problem. (Interview, April 17, 2001)
Beyond the problem of time and stress, there are other faculty who are self-aware that they (as faculty) are often not as open to collaborate with others. Part of this may be related to issues such as the lack of time, as Roy points out, but another reason seems to be rooted in the characteristics of the faculty/teacher culture. Faculty perceptions of autonomy and elitism appear to have an adverse affect on collaborative relationships. Here are three separate comments that support this idea.

**Melissa:** But, you know, faculty members often are difficult to work with, because everybody who has got a job at the university you see was the smartest person in their class, so it’s really hard to get all the smartest people in the class to take direction and do things. (Interview, April 11, 2001)

**Sarah:** And here’s another thing I’m coming to figure out – it’s hard for me, personally, to grapple with this – but teachers – I don’t know why; this should be obvious – but teachers don’t like to trust non-teachers. We are a very insular group; we’re very protective ... Palmer, “Who is the self that teaches?” How do we divide that out? And I have come to believe that we don’t. As much as I would like there to be a line and be in a profession that I can go home at the end of the day – and hang my suit in my closet and be someone else, I can’t, I’m a teacher. (Interview, April 19, 2001)

**Faith:** How do you work with somebody who is there to support you? Teachers are really good people-wise when it has to do with students, and they can – most of them are pretty good even when it has to do with community. But when they have to work in a partnership with somebody, they are not good, because we are all trained that ‘We are responsible for the education of this student, and only we’. And so part of the whole issue now, I think, in working with technology in the University is a people issue and an educative issue of both sides as to what the purpose of the technology is. (Interview, April 20, 2001)

Although it would be a mistake to generalize that all faculty perceive themselves in the same way as is implied above, such
descriptions occur in the interviews of almost all of the participants. Faculty feel a sense of ownership of their teaching environments and their students and perhaps feel that working in a collaborative environment or working with technology may threaten the ownership and control of their teaching. Many faculty are likely unprepared and in some cases unwilling to collaborate due to the implications of collaboration and the loss of autonomy this implies (Principle/Practice 2).

Roy: It all comes down to power. Academics are accustomed to being very independent people. Tenured academics are accustomed to being very, very independent. And you operate within the constraints of your curriculum and your departmental guidelines and so on, but otherwise what you do is entirely up to you, and providing you are acting responsibly, there will be no problems. When you start getting into technology, to an extent, you put some of that freedom into somebody else's hands; you become dependent on other people. And academics don't like to admit that they are dependent on technicians. Academics don't like to admit that they don't know things. So … in a sense there is some fear, there is some fear of a loss of power, loss of control. (Interview, April 17, 2001)

4.4.2 Perceptions of the Role of Technology

From the previous passages, it can be concluded that there is some resistance to both technology and to the idea of collaboration itself. I would like to separate these two elements, as they are both important concepts worth identifying and exploring. The following passages reflect the perceptions of faculty on technology itself and on its influence on higher education and the subsequent changing roles of faculty.

Melissa: Very, very resistant people think that this is the beginning of the end for professors and once the courses are on the web the professors will disappear. However, I've never done a more professor intensive class than this on-line class. (Interview, April 11, 2001)
Faith: I think a lot of faculty aren’t doing it (using technology in the classroom) … for us … the greatest danger in the world to our security as humans, both monetarily and in terms of how we feel about ourselves and how our colleagues feel about us, is to be lacking in knowledge. I mean that’s the deep heart security fear within this. … And that can make us impatient with anything that gets in the way. If it’s a pen, you know, and the pen stops working, I just go ‘bing’ and it’s in the garbage can. But the technology, the computerized technology in particular, feels almost like a person getting in your way. It feels intentional. It’s not, we know it’s not, we’re not stupid, we know it was programmed by human beings and we know it’s bits and bytes. But it feels like a human being. (Interview, April 20, 2001)

Kannon: And also to with the course with ClassPoint (a delivery technology). (The Telco) laid cable from here to four communities. And there was the one problem with the class in Springfield in that … almost every week the students missed because they could never get on-line. (Interview, April 24, 2001)

BassTech: Also the technical problems … for example, running WebCT and Internet Explorer, there’s some glitches. Downloading software. Students don’t often know how to install Adobe Acrobat Reader. And if there’s glitches, how do you troubleshoot when somebody’s running on a modem and they are calling you for help? And I am not a technical person to begin with. (Interview, April 25, 2001)

From the previous statements it becomes clear that faculty are experiencing "technical difficulties“ within their teaching environments. Often these problems are perceived to be out of their immediate control and tend to adversely affect the delicate relationship faculty members have with their students. Faith believes that these types of difficulties feel personal in nature. Both Kannon and BassTech speak of technical problems that they have had to overcome to accomplish what were once simple classroom tasks.
Melissa’s comment which points to a fear that this seems to be “the beginning of the end for professors” is definitely not a new idea. In fact, it is not only professors who have felt the pressures of an increasingly digital society; it is society at large. Almost thirty years ago, McLuhan (1964) wrote most prophetically “Automation is information and it not only ends jobs in the world of work, it ends subjects in the world of learning” (p. 346). Ironically, it is very interesting that Melissa describes her experiences with an on-line course as the most “professor intensive experience she has ever had.” This idea will be further explored later in this chapter.

The idea of overselling technology was addressed in the literature review and this again was brought to my attention by a number of the participants. Next, Brigitte offers her critical view of the choices behind technology usage. Related to this idea, Melissa shares her perceptions of how she thought the technology would work versus how it actually did work in the delivery of her on-line course. Then, Sarah recollects the hype surrounding the idea of the paperless office. Faith’s years of experience tell of the monetary waste of prior over-hyped technologies. Finally, George reflects past misdirection’s related to technology implementation and attempts to address this relevant issue.

**Brigitte:** There’s also an immediate fear that it is really worthwhile. Is it just something that’s new that we can do just as good a job without it? What’s the value, some are not recognizing the value. (Interview, April 5, 2001)
**Melissa:** I imagined that the technology would be more efficient than it actually was. My ideas are of what would be possible down the road. And I didn’t understand the technical limitations -- that we didn’t have enough capacity to really do high quality images and at the same time communicate. (Interview, April 11, 2001)

**Sarah:** It’s like – when we were really into the personal computer, you know, the PC, when it really came on-line and there was going to be the paperless office. I mean do you remember the buzz about that? And now, we produce more paper than ever; let’s face it. (Interview, April 19, 2001)

**Faith:** And they were useless, they were just junk. It was a total waste of money. And I watched a lot of money wasted on TV-related technologies. ... I think there are tremendous resources going into it (technology) and people get all hyper and they forget that resources have to go into other places. On the other hand, all of these technologies have been supportive of learning when used in considerate ways. (Interview, April 20, 2001)

**George:** Well I think part of the problem was ... in the sixties people oversold technology. People did not understand how technology could be applied. So we failed on the early computer related instructional pieces. Part of it was they just couldn’t figure out how to create the software. ... So I think we have learned a lot from the mistakes in the past, which I think make us very aware that we can’t oversell this. But on the other hand, we have a generation of people who are comfortable using this technology for their own personal life, so why not adapt it to the learning process? (Interview, April 9, 2001)

What I found to be of great interest here is the self-awareness identified within the individual comments. Although some participants feel a particular way about the technology and seemed aware of their social environment and of others’ often-pessimistic perceptions, most see the opportunities that technologies bring and understand the real potential for better teaching and learning.

At the same time, not all of the participant experiences with technology are positive concerning the actual impact on learning in the
classroom. Here Faith reflects on her recent experience with WebCT in a Cross-Cultural class this last semester and cautions others on the thoughtless use of technology.

**Faith:** And we always tend to forget. I mean we get this wonderful new pen or this wonderful new way of keeping our daily diary. But if it’s me, I mean whether it’s a book that you write in or a Palm Pilot, I still – it still doesn’t help me much, because I am naturally born scrambled about keeping track of – I am not in intentional about keeping track of my life. But I AM intentional about the way I teach my students. So if I use technology intentionally, it works. This year I got a little carried away with something and it made my Cross-Cultural class – in my opinion – less valuable than it had been before, because I had used it thoughtlessly. Now I think WebCT has lots of good uses, but I didn’t think about it, enough about it, and I went into doing it because someone had asked me to. And I didn’t use it as thoughtfully and intentionally as I should have, and so I think the end result was that it made my class less effective. This doesn’t mean I will throw out WebCT, it means I am going to think about what went wrong and try to use it with more intention. (Interview, April 20, 2001)

Faith’s reflection is true to the nature of an educator. She sees technology as another tool, which can do as much harm as it can do good. "**Intentionality** is key to quality application of technology" (Principle/Practice 3).

Faith’s example illustrates how separate the facilitation is from the technology – technology is only a small part of the whole educational process. Roy also agrees with technology as being just another tool. Although Roy sees the technology as quite useful in its ability to augment and enhance current instructional practices, he sees real transformation through technology far from being a reality.

**Roy:** This is a tool. It’s a tool. It doesn’t replace anything. It’s a tool in exactly the same way that – you know, a CD allows you to bring
in a recording of a Gregorian chant if you’re talking about the drama in the Middle Ages and people need to hear some of the chant that would be resounding through those old stone churches to get some idea of the acoustics of the building. .... I would be very suspicious of anybody who said that it would be transformative. I don’t think that we are nearly there yet. The day when we’ve got virtual reality working to the extent that you can sit at the end of the office and watch an act in a Shakespearean play unfold before you at the end of your office, that will be transformative. And then when you can walk into the action and it stops and you can ask them questions, that’s going to be transformative. But until we get to that point, I don’t see it as transformative. (Interview, April 17, 2001)

As Roy sees the limitations of the current technology, he places the importance on the premise of interaction. His example relies on the premise of student interaction with content specialists to have a transformative effect. Related to this, Uncle informs the group of the recent administrative decisions made by the Massachusetts Institute of Technology (MIT). From this example and from Roy’s earlier comments, greater emphasis seems to be placed on student/faculty interaction versus student/content interaction. Uncle posted the following quote on the WebCT bulletin board as part of the extended-interview research process.

**Uncle:** The social sciences reference librarian just forwarded me a very interesting article describing MIT’s use of technology. Basically they are posting everything to the net and letting anybody have access to it worldwide. I would like to propose this as an example of best practice. Talk about flattening the lines of authority and blurring the distinction between teacher and student! (WebCT, April 4, 2001)

The article Uncle is referring to was published by the New York Times and was titled “Auditing Classes at M.I.T., on the Web and Free.” This article describes the recent 100 million dollar (US) initiative to post
all of MIT’s course offerings on the web for free for students to audit. What is very interesting about the initiative is its rationale. When commenting on whether students would now balk at paying tuition at a University where the course materials are now freely available, Dr. Charles Vest, MIT’s current President, replied “Our central value is people and the human experience of faculty working with students in classrooms and laboratories, and students learning from each other, and the kind of intensive environment we create in our residential university” (2001). Although there is still negative discourse surrounding the changing roles of professors regarding the use of technology in the University environment, much recent evidence would suggest that this shift might tend to be positive.

4.4.3 Perceptions of Faculty Instructional Technology Support

From the interviews, it became evident that experiences with instructional designers and technical support staff were varied. For many faculty and administrators, the amount of technical support seemed to be insufficient to support the campus needs. Although, it is agreed that the amount of support is quite low, the existing support must be better marketed to faculty and staff. The following passages support this idea.

Johnny: I think it’s hard to know where to go to get help. (Interview, April 1, 2001)

Johnny: I did some stuff (use of technology) in a statistics class. That was really awkward because the infrastructure and support at the University was almost nil then. In fact my experience was that
they tried very hard to keep you from doing it. (Interview, April 1, 2001)

**George:** We've got to have some more technical people to support WebCT. We need some more equipment so that people can come to an area and ‘play’ with the stuff. And I use ‘play’ as a positive term. (Interview, April 9, 2001)

**Roy:** You know, I believe we are in a discussion right now on whether to hire ‘a’ webmaster for the whole University. Well, if that’s the state we are in, we’re in trouble. ... If there had been endless support, who knows, one might have taken advantage of it. But support at this institution is of course very constrained and we don’t have a great deal of money. (Interview, April 17, 2001)

What also seemed to vary is the quality of technical support that is provided by the institution. The trend here seems to be that although technical support has been perceived as poor in the past, there seems to be a marked improvement. Furthermore, as implied by Melissa amongst others, the perception in the quality of service provided by the institution’s instructional designers was very high.

**Sarah:** I was appalled by the function of the Technical Help Desk at this University. If you contacted them, they didn’t get back to you. If they did get back to you, they didn’t have the answers. ... But they really fit the stereotype of the ‘Helpless Desk’. I know they’ve had a bad rap. (Interview, April 19, 2001)

**Brigitte:** From say four or five years ago, at one time it was hard to get anyone at the Technical Help Desk, and now there’s somebody answering and somebody available.

**Melissa:** Suzanne (an instructional designer) helped me a lot with the design of the course. She sat with worksheets and made me – I mean I guess they do this for all of the classes and, you know “Well, what are you going to do?” and “What do you need?” and “How are you going to do it?” and “What do you hope to accomplish with this?” so that took me through step by step, which is a delicate thing to do to a professor when you’re the instructional designer. And she handled that really well. (Interview, April 11, 2001)
Beyond the basic quality and quantity type identifications, participants offered several other ideas on the reasons why the technical support was perceived to be poor in numerous cases. For the majority, the deficiencies were attributed to poorly understood roles, lack of communication between faculty and technicians, a general clash of cultures and ultimately inadequate salaries for technical support staff.

**Faith:** The only reason you (technicians) exist here is to make sure we can do our job. And the reason we exist here is to make sure that the students learn and the research gets done. We're all cogs in a wheel, and we interact …. So we are all in a position, but all of us are only here for two things, to make sure students learn, and to advance the cause of knowledge. And we're all cogs in that wheel. But the faculty sometimes don't understand they are only a cog, or at least act as if they don't understand. (Interview, April 20, 2001)

**Sarah:** I think it has been my experience that in order to get help from the ‘tech-heads’ … you have to prove yourself. If you prove yourself by some miracle design, design, fluke – who knows – and you can dialogue with them in their tech language, then they are interested. Because, these are not boring people …. You know, you want to have a post-modern discussion on the merits of, you know, sitting children in front of computer screens all day, you will find lots of faculty members who want to do that. You want to talk about the resolution of a screen? Faculty members don’t care. But if I want to know WHY that when I test my PowerPoint presentation out here and everything is going gangbusters and then I go present it, and no one can read my slides, I need to know something about screen resolution. But faculty are NOT usually interested. They think it’s beneath them. (Interview, April 19, 2001)

**Brigitte:** And keeping personnel around who are trained in this area (technology), I mean the University doesn’t pay a lot of money to people compared to what they can make in the private sector. And if you’re spending a lot of time trying to learn new technology, then you’re not doing the research. And I think people feel a pressure to do research, so they may not want to spend the time learning new technology. (Interview, April 4, 2001)

**BassTech:** They have to redefine the role of the instructional designer at the University in a way that is comparable with
especially other Western universities. There was a posting for the instructional designer at ... just a few weeks ago, starting at $49,000. And that is with a Bachelor's degree. You don’t even need a Master's degree for that particular position. (Interview, April 25, 2001)

Faith contributed the idea that “we are all cogs in a wheel,” and that we are all working towards one common goal. From her perspective, the common goals for the institution are specifically to 1) promote student learning, and 2) to advance the cause of knowledge. This is supported more globally by Chafee and Williams (1997) who write, “At the deepest assumptive level, members of the collegiate culture share the belief that the overarching purpose of the academy lies in the production and the dissemination of knowledge as bound by disciplinary affiliation, and as determined and defined within and by those disciplines” (p. 236).

Although the changes in technology within institutions seem drastic, it is important to remember the purpose of higher education. This was reinforced by a memorable quote from Faith and it serves to re-visit the context for this entire study.

**Faith:** The purpose of an educational institution never changes. If it does, it stops being an educational institution. The purpose is to make society and the members of society continue to have the knowledge they need in order to keep society healthy and moving and to keep themselves productive parts of it, and to constantly create new knowledge. Those two purposes cannot change. If they change, it’s not a university. So, if it’s a virtual university, or a brick-and-mortar university, or what the university was in the beginning, you know a group of people following a wise guy around and sitting around and listening to whatever he had to say. It doesn’t matter. The technology, the social structure, the place, the whatever, are all immaterial to the purpose. So if you get caught up with those other things and forget the purpose, then you don’t have
anything. Then you have pure market stuff and in the long run, the institution will die. (Interview, April 20, 2001)

The next section suggests that the goals for the institution regarding technology are not always as clear.

**4.4.4 Sensing the Vision: Perceptions of Administrative Support**

Participants were encouraged to examine their ideas regarding the degree and quality of support from the administration regarding the use of technology at the institution. While some participants felt there was little if any pressure or support for technology use from the administration, a few had made special arrangements with administration to negotiate their roles. Yet others felt the amount of current pressure to be unjust given the traditional academic responsibilities. Clearly, in terms of a uniform and consistent administrative mandate, there seems to be more of a broken-front regarding IT support. The mixture of responses follows.

**Sarah:** Who is promoting it? There doesn’t seem to be any administrative promotion. (Interview, April 19, 2001)

**Johnny:** This stuff (technology) ... is really a big part of my academic responsibilities. I meant that’s what I have worked out with the previous Dean. (Interview, April 1, 2001)

**Brigitte:** I think using technology, unless you’re really into it and familiar with it, is so time consuming. So unless you – if people feel pressured to use it by the administration on top of everything else they have got to do, then they are not going to use it well, and they are going to be angry and everything else. (Interview, April 4, 2001)

**Roy:** I think that one of the things that the University has to face squarely is this issue (administrative support). If the University would really like us to do a good job technologically, to move stuff to the Web, and to make stuff on the Web good, rich, useful, flexible,
helpful, and not just there like a mass of cold porridge ... then number one, it has to give us time to do that, and number two, it has to reward us for doing it well. Put bluntly, if you’re going to spend time doing course websites, how many fewer articles are we allowed to write or publish? And it’s still the question of the balance between teaching and research, because web-based work has to do with teaching. In an era when you are being expected to do more and more published research, at what point do we strike a balance or at what point do we say “Enough is enough”? (Interview, April 17, 2001)

It became quite clearly early in the interviews that a reasonable vision for technology was not apparent. To support this point, Chaffee and Williams (1997) write, “Administrators may seek high enrolment, efficiency, or accountability, while faculty may seek smaller classes, more travel funds, and fewer committees. These sets of goals are not necessarily mutually exclusive, but they illustrate fundamental differences in language and thought between two subcultures. Before they can share a vision, they need to find shared goals and language” (p. 233). *Institutions with diverse subcultures need a shared vision to unite people and coordinate action, but their diversity makes this difficult to achieve* (Principle/Practice 4).

To further illustrate the level of administrative support, a recent example is provided. In the past several months, the provincial government has allocated a significant amount of funding to allow for the development of on-line courses within the province’s higher education and technical institutions. From the analysis of the participants’ reflections regarding the funding reallocation to campus projects, there seems to be some evidence of a blurred vision regarding the role of
technology and the development of on-line courses. More specifically, some faculty question the process of project funding.

**Uncle:** They are not saying yay or nay on the basis of whether or not they are good courses or whether or not they fit into a market niche. They are saying “We want to deliver this course because we want to get an edge over the U of Z” or “We want to deliver a Computer Certificate Program in the North” or “We should really encourage that Faculty and give them a course because they have done nothing in this field.” I mean all of these kind of political reasons are institutional choices, but they are not driven by pedagogy and they are not driven by pure student needs. (Interview, April 3, 2001)

**Melissa:** Well I am concerned about the divisions and what we hope to accomplish. A lot of change seems to be happening piecemeal, and the (course funding) proposals come in and people have to apply really quickly and come up with something zip, zip, zip. And I saw the proposals in the Faculty for what we want to accomplish. And some of them were really good, and others I thought were a bit corny and maybe ... not as impressive. But overall there was no vision in the Faculty for what we want to accomplish. ... It’s often just one person in a particular department program that thinks it’s a cool idea. (Interview, April 11, 2001)

**Uncle:** There is still this very scattergun approach to funding, “Well, we don’t want to hurt these people’s feelings” and “Oh, well, this faculty has never had one, so we had better give them one.” And it would be much better if we have a plan. (Interview, April 13, 2001)

**BassTech:** I think the administration thinks online courses can have larger enrolments, but I know from experience working with online courses, that can be very difficult, and especially if you have only one instructor. ... And so I think administration is not being realistic about that either. But know they are looking for money. They want -- they think -- online courses will bring in more students and bring in more money. (Interview, April 25, 2001)

**Melissa:** We have two technicians that will look after these things (technical aspects). But I think the change is happening so quickly, it’s more the academic leadership that we need to think about. What do we hope to accomplish, and what kind of programs are best suited to this? (Interview, April 1, 2001)
Bates (1999) would probably sense that the reflections voiced here are typical of an institution that has traditionally supported the Lone Ranger Model to developing technology initiatives. Bates recognized that there are several advantages to this model and most of these relate to the support for autonomy it tends to give individual faculty. However, Bates does see disadvantages to this model. Reasons for this negative view includes the absence of a final product (most sites remain under permanent construction) or that the graphics and interfaces are often quite poor in relation to similar commercial products.

**Roy:** I am not sure that I can offer anything but a little bit of advice. And that would be that we should do things well, whatever that is, if we can show people a system, a course, a website, a set of resources, whatever it might be, that’s really rich and good and works well and is transparent in its ease and use and so, then things will come. But if we have websites that are ugly and stupid and out of date and don’t work right, and technology that doesn’t work right, and websites that aren’t planned properly, or that we have situations whereby people spend a tremendous amount of time putting all this stuff on the Web and the material itself is no good, then we are going to turn people off. (Interview, April 17, 2001)

Beyond concerns about the aesthetic, the functionality and the quality of materials often created within the Lone Ranger approach, Bates (1999) identifies the poor use of faculty time and expertise as perhaps the greatest disadvantage.

The most valuable resource in a university or college is the time of a professor. The problem with Lone Rangers is that they often spend a lot of time doing technical work, such as designing Web pages or animation that a professional could do much more quickly and much more effectively. The prima donna shouldn’t paint the scenery. (p. 61)
Marked progress has recently been made towards a Project Management Model at the University, with the proposed development of a Technology Learning Centre. This is a proposed centre where faculty, instructional designers, technical personnel and administration could meet to jointly plan and develop on-line courses and technology-enhanced learning projects for the institution.

4.4.5 The Standardization of Campus Technology

One of the harsh realities in the use of technology is that there is a great human cost necessary for its support. Implementation of campus computing technologies cannot be considered without factoring in financial support. Many contemporary institutions have turned to the standardization of computing equipment to lower the overall cost and need for support. Here is an excerpt of the interview with the information technology administrator on the issue of standardization.

**George:** You cannot afford infinite choice within the institution. And that’s why we have created the Everlast. Because there’s a big win for the Everlast on the institution, or two: one is our technology is current, and the other, we simply just cannot afford the maintenance. It’s that simple.

**Alec:** So what about those people with Macs or those that are very uncomfortable with that level of standardization?

**George:** Phone somebody else (for support). You’ve paid the price.

(Interview, April 9, 2001)

The “Everlast” project that George refers to is an initiative renewing all computing equipment on campus every four years. One-quarter of the equipment is renewed annually and standardized to specification.
George’s two assumptions regarding the program are correct. However, there are some faculty who would argue that standardization intrudes on individuality and reduces flexibility of delivery. Considering the Lone Ranger model versus the Project Management Approach, perhaps this is exactly what the administration desires. This would serve to keep projects more centrally controlled. Ironically, one of the key and most successful Lone Rangers on campus is Johnny, a Macintosh computer user.

**Johnny:** I’m a Mac person – since I started to do this. I got intrigued by technology and decided to do it on a Mac. So as you know, there is not much support for the Mac. (Interview, April 1, 2001)

Kannon, another institution leader in the use of technology in the classroom, is also a Macintosh user. Here she explains why she has chosen to take the route of little institutional technical support.

**Kannon:** Well a PC means, is short for personal computer. Personal means personal, and whether you go towards Macs, or you go Commodore or Radio Shack, or IBM, or whatever, it depends on what each person is comfortable with. And the computer that’s least intrusive on my research, that allows me to work most intuitively without learning much about the computer, happens to be a Mac. I can use it intuitively. (Interview, April 27, 2001)

There were really two key issues that emerged around discussions of institutional technology standardization. One is the perceived lack of flexibility and control that a faculty member has over his or her production. Here Johnny illustrates his frustration with the delivery software being out-of-date.

**Johnny:** When we started this (delivering courses on-line), since we were doing it ourselves, I really wanted control of creating courses,
deleting courses, changing courses, you know, in the WebCT site, you know, which you can’t if you go through Information Services. And the Information Services version of WebCT is about three versions behind. (Interview, April 1, 2001)

The second key issue around standardization is the issue of whether or not the on-line delivered courses should be standardized. Although, this is not an explicit part of the “Everlast” plan, the standardization of courses or of a delivery portal is drawing a variety of opinions and concerns.

Sarah: I am a non-converted WebCT person. I did it, I jumped on the bandwagon, I put my whole course up on WebCT, I made my students use it, and that stuff. And for the benefit of it, now I just use my (self-developed/non-standard) website, because it’s easier for me. It requires less instructional or institutional support. ..... I mean, I have autonomy, and I think that’s a big thing. And I think that’s a big thing in technology in general. I think that’s the big roadblock to implementing technology in teaching. (April 19, 2001)

Johnny: A faculty member came over here one day and we talked about when I started teaching Math 151 and he asked me a really interesting question when I talked about how it was offered online. He said, “Does it take you out of the course?” And I think that that’s what really taking the faculty member out of the course, it’s in making the generic thing, and it doesn’t have any flavour of the faculty member itself. .... Personality HAS to be there. (Interview, April 1, 2001)

Uncle: Well one example is when people want to use their own icons, or when we hear people from Fine Arts or Visual Arts saying “Oh well, the icons, you know, that WebCT uses are so ugly and so aesthetically unpleasing. There’s no way I would allow them on my website.” And so that kind of sets it into that individuality is taking from – is fine, but it’s not really taking the needs of the learner into account. (Interview, April 3, 2001)

Roy: Larry Benson’s site on Chauser at Harvard (http://icg.harvard.edu/~chaucer/), complete with sound so that you can practice your Middle English pronunciation is very, very impressive. And there are hundreds of other examples of good personal course sites. But these tend to come from places that are
much wealthier than we are and have the resources and therefore the people to implement these things. And certainly I think we’ve got lots of ideas here. We just – number one, don’t have enough time, and, number two, we don’t have enough money. And in effect that’s the same problem. Not having enough time is not having enough money. (Interview, April 17, 2001)

**Roy:** I think for course material, once you get beyond the initial ... the front page of the course is up to the instructor and should be up to the instructor, in the same way that nobody has ever told use what our syllabi or our handouts should look like. So maybe an initial course-opening page that’s common to a department or common to a Faculty. Beyond that, no. You don’t want to be interfering with what people are doing visually. However, anything dealing with central functions in the University, administrative, financial, and so forth, obviously that has to have a common theme. (Interview, April 17, 2001)

While Sarah points to the issue of autonomy and ultimately her perceptions of the ease related to faculty-developed materials, Johnny and Uncle respond more directly to the pedagogical and learner-centric issues of online course development. Finally, Roy believes that ultimately, the lack of good development comes down to the matter of insufficient time and money, and the precarious balance between the autonomy of faculty and the official marketing presence of the University. In support of this idea, Massey and Zemsky (1995) have argued, “IT’s Gordian knot is the trade-off between faculty control and educational cost” (On-line). The reality of developing and ultimately sustaining a collaborative model to do all of the above is increasingly difficult to conceive. In the following passage, BassTech speaks of the instructional designers’ efforts that attempt to provide short-term solutions to course
development. However, she herself sees the limitations of the current model.

**BassTech:** Depending on what the faculty member wants, we will sit down and help them to figure out how to deliver their course via technology, with televised, online, CD ROM, whatever they want. We will go so far as to actually design their sites and multimedia projects for them and to be their trainer, their advisor, and their editor. We have also offered a lot of technical support recently, both for the instructor during the design and the developmental process, but also for the instructor and the students during delivery, which doesn't really fall into our mandate, but there is not network at the University to provide off-campus student technical support for online courses. (Interview, April 25, 2001)

Yet with the identified deficiencies in the current model, most faculty and support-staff remain very positive about the potential for online and technology-enhanced learning. Beyond the technical considerations, the lack of time, money and personnel for development and delivery and the communication deficiencies, faculty remain quite positive.

**Uncle:** Let's get on the train, show us the way, let's get started, as long as there's a sound plan. (Interview, April 3, 2001)

4.5 Projected Collaborative Roles and Relationships

**Sarah:** I am a strong believer in architecture. And I think that's what -- I mean -- I think technology influences the architecture of teaching. (Interview, April 19, 2001)

Sarah’s comment on the relation of architecture to teaching was important to my realization that the sustainability of any model has much to do with its architecture. And in terms of a strong yet flexible architecture that encourages and supports the appropriate use of
technology within the institution, one has to re-examine the role that every individual and each institutional component plays and more importantly, how each member interacts and communicates. The need for improved communication and the revaluation of key roles is clear.

4.5.1 Role of Faculty: Manager, Facilitator and Critical User

Sarah: And so we – and here’s my little pet peeve – we pay faculty members, who are making 60 or 70 grand to sit in their offices and word process, because we all have computers. It’s a poor use of time. It might be a great use of technology. It’s a poor administrative decision. (Interview, April 19, 2001)

Sarah’s concerns on the role of faculty within the institution are voiced in many diverse ways from all of the participants. The widespread use of technology in higher education institutions has made the role of the professor somewhat unclear. If the goals for the institution are exactly the same, why do individual roles need to be reshaped? Here, Sarah uses a metaphor to better reflect on how technology changes the world of work.

Sarah: I was having a conversation when we arrived at work, with a few people in the faculty, and I held the door open for everyone this morning. You know, when you walk into a building, I hold the door open. I was first. And they were all falling over themselves because I had held the door open. There were some men and some women, so it wasn’t a gender thing. It was just, you know, a nice thing to do on a Tuesday morning. And I said, “Well you know, I think everyone feels better if someone holds the door open for them now and then.” And they agreed. And then that got us talking onto a conversation about door-persons, people who hold doors for a living, and how they still exist in New York. … And then we commented on how all those things have disappeared, all of those services and all those jobs. …. And I think technology is a little bit like that. The advantage is that we redefine work and the disadvantage is that we redefine work. …. There should be more door openers. (Interview, April 19, 2001)
Sarah’s comments reflect much of what is said by the other participants of the study. With more “door-openers,” essentially more support, faculty can be left to do what they do best – research, teaching and the facilitation of learning through rich interaction with students. Yet, Uncle suggests that even these basic faculty roles have changed with the effective use of technology.

**Uncle:** And I think the buzzword in the literature is that, you know, the teacher is no longer the teacher, but the manager of learning. And I think in a K-12 sort of way set-up, we can understand that a little easier .... But in the university setting, the managers of learning will be the subject area specialist, the instructional designer, the technical support, the person on the help-desk, the student-services person, the library information person. I think that they will ALL be managers of learning. And as well of course, the student, “How am I managing my learning?” (Interview, April 3, 2001)

The change in faculty from being the transmitter of knowledge to a knowledge manager now requires various types of support and trained personnel. But even with enormous amounts of support, the faculty member must still internalize and accept the rationale for change. Ramsden (1992) writes, “Only when the message gets home that higher education teaching must encourage active and responsible student learning within a cooperative, clearly structured and considerate environment, can we hope for improvement” (p. 166). From the interviews, it appears that many faculty are beginning to, or have already, prepared themselves for the adjustment. Melissa supports the role of professor as facilitator in the classroom.
**Melissa:** ... that’s the idea, that information can be there for us to use. So I don’t think that it (information technology) makes the professor redundant, because the professor is still the professor and the facilitator. (Interview, April 11, 2001)

Faith expands Melissa’s view as she adds that the role of the professor includes the critique and the intentional use of technologies.

**Faith:** All those technologies are really neat, but they are no different than the book or the paper or the charcoal burned stick. It depends on what you do with them. And in order to use them well, you have to use them critically, thoughtfully, in an intentional way. (Interview, April 20, 2001)

Faith’s ideas on how faculty must be critical in the use of technology in the classroom are not unique. Sarah, an experienced technology user, suggest that once faculty get past the initial barriers of technology use, there seems to be a tendency to become more critical of its use. Through her own student feedback, Sarah is rethinking the role of technology in her teaching.

**Sarah:** I’ve used technology in the past. I did a huge presentation as a summation to a class, and I did a feedback form for it, and I used PowerPoint in some rather poetic, and I felt, innovative ways. And when I got my feedback sheets, it was really clear to me that about a third of the audience was so overwhelmed that they couldn’t even get the content. .... The more time goes by, the less innovative I feel. I’m questioning more and more why we’re doing it. And I’m less and less willing to use technology because it’s there. And I really am looking more and more at having a really good reason. (Interview, April 19, 2001)

Uncle seems to agree with Sarah’s last statement regarding needing a good reason for the use of technology. He sees technology as a driver of change often confusing the intended purpose of its use.

**Uncle:** But the irony is that although we know that technology is not supposed to be, should not drive teaching, drive pedagogy –
technology is really driving change. It really is the engine of change. And as a result, I think that’s where we get confused. The drive for change is led by a push for technology. And at the same time, technology should really be a tool that enhances teaching. Sometimes it gets complicated of what’s best coming first. (Interview, April 13, 2001)

4.5.2 Technological and Information Literacy for Faculty

Another very interesting idea that came from Sarah, Uncle and others is the real need to look at faculty technology and information literacy and how this applies to student learning. Here Sarah speaks to the idea of faculty technology literacy. *Although professional development in the faculty has traditionally been geared to more skills-based activities, more time should be spent on the assessment and improvement in technological and information literacy for faculty and students* (Principle/Practice 5).

**Sarah:** Technology has its own language. And we're working here with great big egos and people who are really, really smart, and they are illiterate. And no one likes to be illiterate. And I mean they need (technological) literacy training, I was a literacy tutor at the library for six years. People who are illiterate will do everything humanly and physically possible to hide that. And so I think that faculty members are hiding their technological illiteracy. I know I do. (Interview, April 19, 2001)

To justify the need for faculty and student technological literacy, Johnny discusses the perceived role of faculty as facilitators and information managers. Uncle argues that faculty should no longer be perceived as the expert in the classroom but must be able to provide guidance to an accessible wealth of information resources. If the role of
faculty changes to this extent, professors will need considerable support from library services personnel.

Johnny: I mean it’s no different than I think we should have been doing for the last I don’t know how many years that I’ve been involved in this game, that one of the things you’re trying to instil in students besides just the content knowledge is that they should be able to learn things themselves. And they have always done it before using books and that sort of resource. It’s (information technology) just another resource. And I think we need ... to teach students to use that resource also. (Interview, April 1, 2001)

Uncle: I think it is happening, though. I think it is already happening. As technology is used to deliver or enhance or supplement our courses, more of the knowledge is accessible in different ways. And the idea of expert is somewhat diminished. (Interview, April 13, 2001)

To realize faculty instruction in information skills, the concept of information competence must be both demonstrated and accepted by faculty as a component of higher education (Principle/Practice 6). In a policy document from North Dakota State University, Smith (1997) has concluded that:

Faculty are the critical market for reaching the goal of student information literacy. Information literacy will be integrated throughout the curriculum only if faculty recognize its importance, make it a goal as they develop their syllabi, and know how to teach information literacy themselves. (On-line)

In keeping with the above philosophy, it is becoming clear that faculty are expected to make explicit how they will address the needs of learners as they design their courses. Ideally, this tenet should underlie all types of learning, but in cases of distance education, it has become even more significant. However, this is increasingly difficult to do individually as course creation for online or distance components require
extensive collaboration. A distance education policy document from Pennsylvania State University (1998) states the institution’s vision on the role of faculty in the process.

Unlike classroom instruction, the development of distance education is often a team effort. Therefore, faculty may find themselves in role of ‘team member’ and content expert in the instructional design process. Instructional designers, who often represent the learner’s perspective in team discussions of distance education design, typically begin by identifying learner objectives. (p. 19)

Interview data indicated that it was often the instructional designer that worked most closely with faculty in the creation of online course materials for either terrestrial or distance delivery. The relationship between faculty and instructional design staff will be addressed in the next section.

4.5.3 Instructional Designers – “Keeping Faculty in the Course”

Earlier, I included the question asked of Johnny by an interested faculty member, “Does it (Information Technology) take you out of the course?” This is a key concern of many faculty as technology takes a significant role in course creation and delivery. Interviews suggest that the relationship between the faculty member, the instructional designer and the technology should serve to keep the professor and his/her personality in the course. *The combination of personality and interactivity ultimately determine the success of a course* (Principle/Practice 7).

Here, Uncle further alludes to this conclusion. This is followed by Roy’s perceptions on how certain activities affect interactivity.
Uncle: It’s not a technology problem … they (students) get a sense of personality through the on-line as well as from the person, and it’s both positive and negative. But I think that is going to drive the success of a course. (Interview, April 13, 2001)

The assumption of interactivity seems to drive the overall success of the course. Here, several participants relate how certain practices related to interaction affect course delivery.

Roy: It (instructional technology) frees you in a way from presenting material that can adequately, or even ideally, but down in sort of a quick prose format. You know the obvious analogy is what you do in the old days with a textbook … they (students) go off and read Chapter One, when they come to class, you don’t just read Chapter One, you start working on it. And that’s essentially what you should be doing with the web. For those who are not up to speed on this, there is the perception that once you put your notes on the web, you have somehow “done it”. Well if you are thinking that way … you are barking up the wrong tree, you have missed the boat completely. You do not put everything you are going to say on the website. You can’t. (Interview, April 17, 2001)

In this last passage, Roy criticizes the tendency by faculty to put their entire set of class notes onto the web and to expect that this alone will retain student interest and retention. In the following passage, Roy explains how student interaction becomes an important part of the course, and how dynamic content and flexible presentation of course material allows the professor to hold interest in the course content. In this example, Roy speaks of his experience using WebCT and his personal preference to stay away from the concept of canned courses.

Roy: Well, I have had students in a thirteen-week course who have accessed the WebCT course over a thousand times. Now you just do the math and you seem some people either have a great deal of time on their hands or who are really curious about marks and the linked course materials. …. And I know one of the ideas of WebCT is that you’re supposed to be able to reuse courses in effect. I don’t
work that way myself. I must say, when I redo a course I start not totally from scratch, but I in effect redo the course when I teach it the second or third time because I find myself getting very bored if I try to do something the same way twice. And there’s nothing that shows more quickly in the classroom than boredom on the part of the instructor. (Interview, April 17, 2001)

Although Roy would tend to be more of a Lone Ranger in practice (and apparently by necessity), he gives insight into what the role of the instructional designer should be -- especially for those that are less skilled in the use of instructional technology.

**Roy:** I think that the contribution of instructional designers is extremely important in telling us what can be done because many of us aren’t aware of the possibilities out there. There are people who don’t know basic word processing functions yet, or how to grab a piece of text and move it between applications. That’s where the skill level is at in some areas. And if you have that lack of skill ... you can only imagine what the pit of ignorance is in terms of what can be done with technology and enhanced learning. (Interview, April 17, 2001)

BassTech also reflects her ideas on her perceived role as one of the few instructional designers on campus. She begins to elaborate on the relationships she has with faculty members and on the nature of her role. To confirm Roy’s previous statement, BassTech concludes that most faculty would not be able to do “this type of course development” without strong support from an instructional designer.

**BassTech:** I know that most instructors would never do this if they didn’t have the support, somebody to actually set up the website for them and get everything up there and then teach them how to use it, and gradually wean them into doing it themselves. But most instructors would tell you, if they had worked with me, that they would never have done this without help, because they simply can’t. (Interview, April 25, 2001)

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As for the initial stages of development, BassTech provides insight into what usually takes place when she initially collaborates with a professor in regards to course development. The personality type of the instructional designer cannot be neglected. It’s interesting to recollect how Melissa regarded this type of relationship as delicate.

**BassTech:** Depending on what the faculty member wants, we will sit down with them and help them figure out how to deliver their course via technology, meaning televised, online, CD ROM, whatever they want. We (instructional designers) will go so far as to actually design their sites and multimedia projects for them and to be their trainer, their advisor and their editor. We have also offered a lot of technical support recently, both for the instructor during the design and development process, but also for instructor and students during delivery, which really doesn’t fall in our mandate, but there is no network at the University to provide off-campus student technical support for on-line courses. (Interview, April 25, 2001)

BassTech expands on her role and details the delicate nature of the relationship and affirms its political nature. Another important responsibility of the instructional technologist is project manager. It may be difficult for some faculty to adjust to the instructional designers authority, especially for those who have remained more autonomous regarding course development.

**BassTech:** Well we’re pretty upfront with them. Whenever we form a team or form a working relationship with a faculty member, we tell them, ‘One of our jobs, generally speaking, is to be the nag, and we WILL nag you. And feel free to tell us to bug off if you’re really busy and everything. But that’s what we are here for, because of this, this and this.’ And we’ll tell them why, “You know, if you don’t meet your timeline, we can’t get the material up and then you’re going to be developing while the course is being delivered and these are some of the problems that you are going to run into.” (Interview, April 25, 2001)
Of course the technical aspects of instructional design are integral to the role. When faculty realize what can be done with technology, expectations rise as advanced types of technology are used. Roy has been using elements of multimedia through WebCT and his own course website. He finds that the use of multimedia has increased the interactivity in his communication with students and with their use of online course materials. As an advanced technology user, he realizes the importance of working closely with an instructional designer, to maintain the role of the content expert within the course and to allow the intentions of the content expert to be apparent in the design. He understands the effect of instructional design on assigning meaning to certain elements of content.

**Roy:** Because any element of design, any act of design, carries meaning. It has a meaning value. And, you know, if I had no knowledge at all and I went to an instructional designer and I said, ‘Look, I want to do a course online and I want you to set it up. I’ll give you the material, but I need you to design it.’ The very act of designing the thing assigns importance to some elements of the course. The very look of the page, the semantic value, on any page has semantic value, and I might then have to spend a lot of time editing that with the designer saying, ‘That’s very nice from your point of view, but that’s not at the emphasis I want or that sort of look I want.” And if we have the opportunity to do that, fine. If the instructional designer in effect actually carries out the wishes of the person who is actually going to teach the course and who has expertise in that particular area, that’s very important. (Interview, April 17, 2001)

4.5.4 Insight into the Role of Faculty Professional Development

It seems to be evident that faculty should not expect the instructional designer to do all of the design work in isolation. This
underscores the importance of a collaborative course management approach, but also increases the demand on the institution and the faculty member for professional development. However, the interviews revealed only superficial ideas on how professional development approaches might be improved.

One of the issues that did emerge is the distinction between technical and pedagogical professional development. From the literature review, one of the perceived problems regarding professional development is that sessions on technology are perceived as being largely skills based. Johnny seems to agree with this notion.

Johnny: I’m not convinced that a lot of faculty should be concerned with, necessarily, in learning the nuts and bolts about – you know how you put a graphic in a table, etc. (Interview, April 1, 2001)

In chapter four, Roy stated that faculty are under tremendous time pressure and often do not have the time to go to professional development sessions. Sarah shares her experiences and attitudes towards current attempts at faculty professional development.

Sarah: Generally, it (professional development) is marketed to the administrative support staff. That’s a weakness, in my opinion. Additionally, people will only seek out training if they have to, or if they have a need. But, I have always taken advantage of professional development opportunities, whether or not they really applied to me. And by going – and putting up with – putting up with – that is to say, when I go to a session – let’s say ‘Word 4’. First of all, they want you to take Word 1, 2 and 3, which is annoying in and of itself. Nevertheless, when you finally get to Word 4 … that is where the meat of what you really want to do is – because I am not a secretary but I do want to use Word to enhance learning and to make my job easier. (Interview, April 19, 2001)
The problems that Sarah points out are significant. Faculty must first acquire the skills necessary to use technology seamlessly but the purpose for use must be explicitly shown to be different than the way in which administrative support staff would use the same technology. If faculty are to be leaders in transforming the academy from a teacher-centric to a learner-centric model, increased technology skills will not be sufficient.

Uncle elaborates on this deficiency. Uncle plays an administrative role at the Centre for Instructional Development (CID). In recent years, there has been pressure to associate good teaching with technology use, often ignoring other components of good teaching. Uncle alludes to the purpose of the CID and how other faculty and administrative personnel perceive its purpose.

**Uncle:** There is a problem with those people who say, “Well why can’t the Centre for Instructional Development be instructional technology?” The problem is that they don’t understand that there’s a whole bunch of other factors and that good teaching doesn’t mean that it just involves technology. (Interview, April 13, 2001)

In *The Fifth Language*, Logan (1995) identifies the five languages of a new “core curriculum” to be rhetoric, literacy, numeracy, science literacy and computer literacy. In defining computer literacy, Logan (1995) writes, “A thorough definition of computer literacy ... is not limited to the skills of just operating or programming a computer; it includes an understanding of the social implications for the new technology” (p. 258).
This idea clearly cannot be addressed by the current understanding of professional development.

Robert Reich in Bennahum (1996), states that society needs “symbolic analysts ... who utilize technology for problem solving” (Online). This idea is supported by Finnegan (1997), who writes, “With the amount of knowledge already universally accessible, and forecasted to be available through digital connections, learning how to consider knowledge – that is, how to apply, analyze and evaluate – and learning how to utilize knowledge – that is, extrapolate, predict, synthesize and create – become essential cognitive skills” (p. 495). Although both of these perspectives depict a labour-centric view of the emerging “knowledge worker,” they offer important ideas to consider for faculty professional development in helping to develop faculty skills as “symbolic analysts,” and to understand the needs of the student related to the pressures of society outside the academy.

4.5.5 Insight into the Role of Library

It is clearly difficult for several reasons to plan and implement effective professional development programs for faculty. However, Mark, a Library Administrator, suggests that there are positive changes in traditional library structure and roles that will benefit faculty support provided by library personnel and develop faculty information literacy.

**Mark:** What we are trying to do is that (traditional approaches) around into a more proactive model where we’re anticipating. We’re not waiting for you necessarily to come to us. We should know more about what your (faculty) research is and more about courses and
programs so that we can anticipate and acquire resources, and even advise through other means – through attending faculty council departmental meetings, subject area meetings, through e-mail correspondence, through web resource development, and in further investigating real-time reference options. (Interview, April 19, 2001)

Mark sees the library developing towards a service model that supports faculty in providing resources, increasing faculty information literacy. Mark discusses the changes that have occurred within libraries over the past several decades in order to support the emerging needs of educational institutions:

**Mark:** I think that libraries have to direct their staff resources more towards service. In the more traditional library context, there would be a heavily technical services area. Then about ten to fifteen years ago, we saw a lot of that activity being streamlined through access to electronic resources. .... So this frees staff to be deployed to focus on developing instructional programs and on providing services at the desktop. .... The role of the library is to assist in directing our clients to quality resources, helping them find their way through the maze of resources, because that has to be done. In a way it's created a more complex environment for the research, because you now have traditional resources and the electronic. (Interview, April 19, 2001)

Due to the overwhelming wealth of information available today, it is necessary for faculty to break away from the perception of libraries as storehouses for books, records and print resources. Morgan (1999) speaks to this traditional view and to the possibilities that arise through more proactive library services:

In today's globally networked information environment, where information is not rare, the role of storehouse is becoming obsolete. The key to future success is emphasis on the evaluation of data and information for the purposes of fostering knowledge and wisdom. Knowledge and wisdom can only be acquired after individuals process data and information. By providing proactive and direct
marketing, libraries can transcend the traditional views of the profession and continue to play an important role ... (p. 35)

Essentially, Mark suggests that the new role of the library will allow librarians to collaborate with faculty to serve their needs in new ways. Perhaps the real barrier for this model’s success comes from those faculty and librarians who are not ready to leave more traditional roles and move towards this participatory model. Yet, Mark positively writes:

**Mark:** We need to be more visible in the community. We need to be at the point where the student or faculty require our expertise, so that’s in the classroom – and being far more involved in the planning process. So getting out of the library is the trend. (Interview, April 19, 2001)

*The movement towards a proactive role for libraries should be seen as a positive and necessary step to further enhance faculty support in helping to acquire and evaluate key resources for research and teaching* (Principle/Practice 8).

### 4.5.6 Insight into the Role of Academic Administration

**Sarah:** That’s the trick. That’s the trick of wandering around and the trick of interacting and the fascinating part of leadership. And this doesn’t have anything to do with technology and it has everything to do with technology. I think that how people are going to move towards and away from each other and towards and away from technology depends on that dialogue and that architecture and that communication. (Interview, April 19, 2001)

Sarah has strong views on the effective role of leadership. Earlier, I wrote to the importance of interactivity in teaching and learning environments. From Sarah’s comments, it seems that she would agree that interactivity is also a desired process regarding leadership. Much of this interaction comes from educational leaders being able to delegate...
tasks to people in strategic positions. Frase and Hetzel (1990) write, “The best leaders hire capable people and delegate tasks to them. More than delegating tasks, they also delegate responsibility and autonomy and get the job done” (p. 129).

In their book, *School Management by Walking Around*, Frase and Hetzel (1990) list several key characteristics of strong academic leadership. Interaction and a grassroots approach to flattening the administrative structure are key issues. I will introduce several of these specific points regarding academic leadership and tie them in with interview data. Frase and Hetzel write specifically about a small school environment, but three elements apply to academic leadership in a broader sense.

1) The leader has a clear understanding of the institution’s mission and is able to state it in direct, concrete terms. Instructional focus is established that unifies staff. (Bayley & Lumley, 1997, p. 6)

There was insufficient data to support or negate whether or not our key academic administrators have a strong understanding of the institutional mission and the role that technology plays within this vision. This question was outside the scope of this research, but it is significant, and deserves study. As alluded to at the beginning of chapter four, it’s often difficult to understand how technology affects the overall vision of an institution. However, as Faith was quoted saying, “The purpose of an educational institution never changes. If it does, it stops being an educational institution” (Interview, April 20, 2001). A
combination of leadership style and the leader’s understanding of the institution’s mission plays an important role in the successful implementation and support of instructional technology.

A University document reveals the level of commitment to technology of the institution under study. “The University will not be in the pioneer group of educational institutions using information technology. The University will, however, be in the competitive to early follower group” (Reference withheld). George reflects the stance of the institution.

**George:** Are we at the phase where the rest of the world is? The answer is no. Are we on the leading edge? The answer, most likely, is no. Because if you lead, you bleed every once in a while, and we can’t afford to. (Interview, April 19, 2001)

*It is important for both administrators and for faculty using the technology to recognize and understand the stance of the University and to lay both expectations and a vision along the parameters of these limitations* (Principle/Practice 9).

An example of where the vision does not seem clear is in the perceived role of distance education within the institution. As noted by BassTech, there seems to be a disparity between what is actually possible in a distance education course versus what administration intends for online courses.

**BassTech:** I think the administration thinks online courses can have larger enrolments, but I know from experience in working with online courses, that can be very difficult, and especially if you have only one instructor. I mean I know from WebCT conferences and talking to people who have done this, you have to have more TA’s.
(teaching assistants) than you would in a face-to-face course of 500 students. It’s an enormous amount of work. And so I think administration is not being realistic about that. (Interview, April 25, 2001)

Administration must be more involved in and aware of the process of information technology implementation, and in the development of online courses. Obviously there will be varying degrees of involvement by administrative personnel. Recently, at the University, several Deans became more closely involved in the process of allocating funding to Technology Enhanced Learning projects. George explains this strategy in its attempt to increase participation by key administrators.

**George:** Well the reason we did this was deliberate, so that the Deans understood that there was an important activity going on and that they should be paying more attention to, or paying appropriate attention to, I think is the way to describe that. And so what we’re trying to do is actually get people involved. (Interview, April 19, 2001)

*Appropriate attention must be given by administration to information technology and online course development* (Principle/Practice 10).

2) Academic leaders know and can apply teaching and learning principles; they know research, legitimize it, and foster its use in problem solving. Effective teaching practices are modelled for staff as appropriate. (Bayley & Lumley, 1997, pp. 6-7)

An important characteristic of academic leadership is the solid understanding of effective teaching strategies. This should include a general understanding of technology itself and the implications for its use. Sarah notes that certain administrators are rarely observed modelling the use of technology.
Sarah: I haven’t seen anyone in an administrative position use any technology besides an overhead, in the three years I’ve been here. (And this gives the message that) it’s not important. (Interview, April 19, 2001)

Bailey and Lumley (1997) regard effective technology leaders as those who view technology as tools that will positively change the way in which we view teaching and learning. They believe that leaders who are successful in the integration of technology into educational environments are those who can model the technology, understand how technology can be used across all disciplines, and can continually focus on systems thinking as they assist others through the transformation of teaching and learning.

As mentioned earlier, the University has in the last several years established the Centre for Instructional Development. The Centre has provided much support to faculty in the development of teaching practice within in the University. However, as Uncle suggested earlier, technology is only a small component of effective instruction. He also concedes that such as centre is limited in type of support it can give regarding technology integration throughout the institution.

Uncle: Inevitably -- if I just keep the same role and say, “Well, we’re here to enhance teaching in a variety of ways and one of the ways would be to enhance technology. But the demands of technology, as you know, technologically the kind of support people need is much greater than anything that this office could do. (Interview, April 13, 2001)

Brigitte seems to support the idea that there are indeed limitations to the role of the Centre for Instructional Development.
Brigitte: The Centre for Instructional Development can give overall general seminars and help individually to promote better teaching. But I don’t think they can service an entire University. (Interview, April 4, 2001)

With this limitation in mind, a new centre has been recently proposed that would serve to assist faculty specifically with the development of online courses and supplementary course materials. The Centre would provide faculty with an environment that provides technology solutions and offers direction and support regarding the use of technology in teaching and learning. Few specific details have been released at this time, however recommendations for the new centre will be discussed in chapter five.

3) Leaders set up systems of incentives and rewards to encourage excellence in student and teacher performance; they act as figureheads in delivering awards and highlighting the importance of excellence. (Bayley & Lumley, 1997, p. 7)

Current literature points to the lack of an acceptable promotion/incentive system regarding the appropriate use of technology by faculty. Smith (1997) suggests that this deficiency may be due to the fact that administrators do not yet see technological innovation as having a significant impact on learning. She writes, “We (faculty) must provide valid and reliable research-based evidence as to the impact of new learning environments on student outcomes before department heads and deans will be willing to encourage their faculty to participate in ongoing innovation efforts. Ultimately, such evidence must inform
substantive changes to existing policies in order to acknowledge and reward teaching innovation” (p. 40).

Sarah would likely agree with Smith’s observation, however she attributes part of the problem to the lack of technological understanding held by certain administrators. She believes that a better understanding is key to providing necessary quality feedback to faculty regarding teaching and research activities.

**Sarah:** I think people like to be recognized for what they are doing well. And think that if administrators need to be more technologically literate so they could provide quality feedback (to faculty). (Interview, April 19, 2001)

Tenure and promotion are perhaps the most controversial issues that arise from a faculty’s use of technology and how technology is viewed in the traditional role of faculty in teaching, research, community service and administration. Diamond (1995) prepared a faculty guide regarding promotion and tenure. He lists six points as being the most influential in acquiring recognition for scholarly and professional work. They include:

1. The activity requires a high level of discipline-related expertise.
2. The activity breaks new ground, is innovative.
3. The activity can be replicated or elaborated.
4. The work and its results can be documented.
5. The work and its results can be peer-reviewed.
6. The activity has significance or impact.

I believe that these recommendations are excellent for both traditional and technology-related research and teaching. If there were any scepticism about this guideline, it would probably come in criticism
to the final two points. For instance, regarding point five, peers not working with technology often have difficulty evaluating something they do not understand. However, if the activity is truly curriculum driven (identified by participants several times), peers should be able to look beyond the technology to determine the actual learning and teaching value. And regarding point six, although significance or impact is often the most difficult point to measure, feedback from students provides substantial, relevant data to help decide whether or not the use of technology does indeed have impact.

From looking closer at many of the interviews, I have been able to draw conclusions regarding technology that need to be recognized during any type of tenure and promotion activity. These assumptions often appear to be neglected within the evaluation process. Administrators need to be aware that:

a) *Work with technology is very time-consuming* (Principle/Practice 11). As quoted earlier in chapter four, several faculty mentioned how much time was invested in using and learning new technologies.

b) *Faculty who work closely with technology in the classroom usually spend a portion of their time learning and teaching new software to students and possibly colleagues* (Principle/Practice 12). Another time-related point, but administrators should understand exactly how this time is spent.

c) *Faculty working closely with technology often find themselves providing technical support to students and colleagues outside of class and office hours, sometimes taking on responsibilities which would not normally fall under their purview* (Principle/Practice 13). Ideally, technical support would not be a part of a faculty’s teaching responsibilities, however at the present time, it is.
With the recognition of these assumptions and a revised approach to tenure and promotion, faculty using technology in their teaching or research might feel more comfortable. Although this would also apply to tenured faculty receiving regular performance reviews, the greatest vulnerability may lie with new non-tenured faculty. Melissa, a tenured faculty member, discusses her similar ideas on the position of newer faculty.

**Melissa:** I don’t think that this (use of technology) should be necessarily foisted onto young people – I think Kannon had a much harder time with it. …. But you know, she’s young. I think it is harder for someone like that to feel confident and to take risks, because she’s in a much more vulnerable position. (Interview, April 11, 2001)

While Melissa believes that younger, non-tenured faculty should not be strongly encouraged to use technology, Uncle sees this type of hesitance to be a mixed-message on the part of leadership.

**Uncle:** You can’t have it being idiosyncratic, like “Oh well, once you get to being an associate professor, you get to play with the technology.” It sends the wrong message, you know. Or and, “Oh, these poor suckers who don’t have tenure, but they are still trying to (use technology) – they are just shooting themselves in the foot. (Interview, April 13, 2001)

While new faculty do have a substantial workload and significant pressure to achieve tenure, the administrations’ rationale for promoting technology within the University must be clear. If the reasons do not include the improvement of teaching and learning and the enhancement of research, then the criteria for tenure and promotion may also be unclear.
Indeed administrators must look at additional pressures placed on all faculty regarding the more prevalent use of technology in University activities. These issues and recommendations will be discussed in the next chapter.

4.6 Genesis and Synthesis of Key Principles and Practices

The purpose of this section is to describe review the principles and practices developed in the fourth and fifth chapters. These principles and practices are assumptions that were important in informing the conclusions of the study. The following is an extrapolation and a brief explanation of each of the key ideas.

1) A key concept in working more effectively and collaboratively is to first of all understand what the role of each individual is and to identify and understand the pressures of the academic environment.

The importance of role empathy and understanding became increasingly important as the research progressed. There were several times where faculty or staff, in varying ways, reflected that their respective roles were either not understood or the complexity or value of their role was undervalued.

2) Many faculty are likely unprepared and in some cases unwilling to collaborate due to the implications of collaboration and the loss of autonomy this implies.

Several statements from the interviews support faculty members’ appreciation of their autonomy. This sentiment combined with the lack
of faith in support services implied by Rickard (1999), may lead to the
unwillingness to collaborate.

3) “Intentionality” is key to quality application of technology.

This idea brought out eloquently by Faith is supported strongly by the
researcher’s own teaching experience. I believe that the “intentional” use
of technology leads also to the appropriate use of technology. This is key
to my personal philosophy.

4) Institutions with diverse subcultures need a shared vision to unite
people and coordinate action, but their diversity makes this difficult
to achieve.

This idea is strongly supported by Chaffee and Williams (1997). The
idea is echoed strongly within this research as participants reflect on
their experiences communicating with other sub-cultures within the
University.

5) Although professional development in the faculty has traditionally
been geared to more skills-based activities, more time should be
spent on the assessment and improvement in technological and
information literacy for faculty and students.

This idea is voiced strongly within the interviews of the study
participants. For Uncle and Sarah, this is particularly a strong point of
concern. Johnny, in his belief that faculty are not necessarily concerned
with the “nuts and bolts” of the technology, supports the idea that
faculty are more concerned with the pedagogical importance of the
technologies.

6) To realize faculty instruction in information skills, the concept of
information competence must be both demonstrated and accepted by
faculty as a component of higher education.
Related closely to principle five, this is another principle derived mainly from interview data. This is also supported in the literature such as in the cases of Smith (1997) or Pennsylvania State University (1998). The idea of faculty as “symbolic analysts” strongly supports this principle.

7) *The combination of personality and interactivity ultimately determine the success of a course.*

Both Uncle and Roy strongly support this idea in their interviews. From my experience both as a teacher and as a student, I can strongly support the validity of this statement.

8) The movement towards a proactive role for libraries should be seen as a positive and necessary step to further enhance faculty support in helping to acquire and evaluate key resources for research and teaching.

Mark as an expert participant and a library administrator attests to the validity of this statement. This is also an idea strongly support by Morgan (1999).

9) *It is important for both administrators and for faculty using the technology to recognize and understand the stance of the University and to lay both expectations and a vision along the parameters of these limitations.*

In Faith’s explanation of the never-changing function of a University, she exposes the blurred the vision of faculty and staff in relation to the use of technology. BassTech also supports this idea in relaying the discrepancy between what is possible (technologically) and what is intended by faculty and administration.
10) Appropriate attention must be given by administration to information technology and online course development.

George adamantly voices his opinion related to this principle. From my personal experience of seeing technology in teaching and learning either drastically under or over emphasized, it may be wise to appoint appropriate attention to its use.

11) Work with technology is very time-consuming.

12) Faculty who work closely with technology in the classroom usually spend a portion of their time learning and teaching new software to students and possibly colleagues.

13) Faculty working closely with technology often find themselves providing technical support to students and colleagues outside of class and office hours, sometimes taking on responsibilities which would not normally fall under their purview.

The last three principles are grouped together as they are quite similar. Almost all of the participants voice these basic ideas. From my own personal experience, I strongly agree with the participants. Yet, the problem with these statements is inherent in their simplicity; many administrators simply do not recognize the time, energy and commitment necessary for faculty and staff to use technology well.
CHAPTER FIVE – DISCUSSION AND RECOMMENDATIONS

5.1 Introduction

This chapter explores the major outcomes of the study as they relate to the four major research questions. Each question will be revisited and the findings will be elaborated in turn. Recommendations will be supplied at the end of each section.

5.2 Policies and Incentives

Research Question 1: What policies and incentives promote and support the instructional use of technology by faculty?

There were several policies and incentives that were identified by participants that supported and encouraged their use of technology in the classroom. Those policies and incentives commonly expressed include the “Everlast” program, a class time-release policy and the administrative encouragement to apply for provincial and institutional grants.

5.2.1 The “Everlast” Project

The “Everlast” project is an initiative that allows the renewal of all computing equipment on campus at least every four years. One-quarter of the equipment is renewed annually and standardized to specification. Most participants perceived the institutional policy positively, however one key concern was that it led to institutional technology standardization. George, the information technology administrator,
views the initiative as a necessary economic measure, and perhaps the only feasible solution available that enables University equipment to remain up-to-date and competitive. However, some participants viewed the resulting standardization as conflicting with their decision-making autonomy.

Another issue arising from the standardization of computing equipment was the decision of whether or not to extend this model towards web-based courses. From an administrative and technical standpoint, the decision to standardize courseware is perceived as beneficial. However, some faculty warn that this initiative may lead to the canning of courses. Faculty interviewed believe that this process could lead to the creation of less effective courses as the content is valued more and the instructor becomes less significant.

5.2.2 Course Time Release

Professors who utilize a suitable component of technology within their teaching are eligible for class time release. The integration of technology into a course allows the professor to earn a half class credit towards total course load. For example, if a professor were required to teach three classes per semester, utilizing technology in two classes that semester would allow the professor to be relieved of one course. As the lack of time is an issue that surfaces several times during the research, this seems to be a positive step taken by the administration. However, some participants expressed that they would rather see benefits in other
areas rather than reducing the teaching load. Teaching, for the majority of participants, is greatly enjoyed.

5.2.3 Grant and Funding Support

Faculty perceive that the University’s administration is providing some support towards the access of external and internal funding for instructional technology initiatives. Although larger universities often have the resources to create entire departments focused primarily on helping faculty acquire funding for research and teaching (e.g., University of Calgary’s Research Services), from the research it seems that the University is making progress towards promoting funding even without such dedicated resources. However, some faculty feel frustrated by the way such funding is being allocated. More specifically, participants question the process of project funding (see section 4.4.4). This may be partially due to the University’s blurred vision on the use of technology in teaching and learning.

From the research there appeared another key issue that affects faculty’s acceptance of instructional technology. While participants from the study felt that instructional technology was purported as an important institutional activity, the absence of administrators modeling the use of technology led to a decrease of its perceived applicability. In short, faculty seek clarity in the role of instructional technology and on how it is perceived as an important activity within the institution. This is discussed in the next section.
5.2.4 Recommendations on the Role of Academic Administration

Strong academic leadership is identified as a determining factor regarding the quality of support for the implementation and use of instructional technology. Administrators need to be more significant “social actors” than they have in the past. From the analysis of the data and from the literature, it is apparent that there are important issues about academic leadership in instructional technology.

It is apparent that academic leaders should have a strong visible presence and the ability to interact with, encourage and influence faculty. To summarize Morgan (1986), leaders induce people to expand narrow perspectives on the world. They themselves strive to engage in a form of learning that amounts to continual rethinking, and they encourage the same in others. Participants felt that good academic leadership is partly based on good teaching and the ability to understand instructional technology related to discipline-specific problem solving activities.

Academic leaders need a strong understanding and an awareness of the vision for instructional technology within the institution. In this study, the participants perceived the lack of clarity, identified in the previous section, as an impediment to faculty’s acceptance of instructional technology as a legitimate institutional activity. Academic leadership must be rooted in the common vision for faculty. This will
allow the administrator, faculty and support staff to legitimize, foster and explore the use of IT in appropriate ways.

Academic leaders should have the ability to model appropriate pedagogy with the use of IT. As Sarah remarks in section 4.5.6, “I haven’t seen anyone in an administrative position used any technology besides an overhead ... it’s just not important” (Interview, April 19, 2001). If the use of instructional technology is part of the vision, leaders must model its use to communicate its importance.

Finally, academic leaders should provide incentives and a degree of security to those faculty who implement instructional technology in appropriate ways. Faculty must feel safe enough to take risks in the pursuit of excellence in teaching and research. Where faculty feel they have failed, administration should promote research opportunities to further improve learning outcomes and the understanding of instructional technology in learning environments.

It was clear from the study that faculty who were using technology were under various pressures. The extended time faculty need to learn and understand new technologies, the responsibility of teaching students how to use the tools and faculty working as technical support are important issues to faculty. Faculty who use IT are generally not using the tools because they feel it makes their lives easier, but most do seem to believe that technology enhances learning opportunities. Such faculty must be continually supported and protected as they contribute valuable
insight into the effective and appropriate use of technology in and out of the classroom. Therefore, administration must act to model, support, enable and protect. Diamond’s (1995) faculty guide regarding tenure and promotion (referenced in 4.5.6) is just one of several ways identified that administrators can begin to enact this role.

5.3 Distributive Support and Resources

Research Question 2: What distributive support and resources are available to promote and support the instructional use of technology by faculty?

Several sub-organizations exist within the institution that provide support for instructional technology initiatives. These include Information Services, an affiliated WebCT office and several instructional designer positions. However, as Information Services is a larger organization with a broader mandate than simply providing instructional technology support, participants perceived the necessity for a new organizational body that is dedicated to technology as it applies to teaching and learning.
5.3.1 Information Services

Information Services is the main organization providing computing support throughout the University. This blanket organization supports and maintains the institution’s technical infrastructure, provides hardware and software support, enables web page development and provides staff professional development opportunities. In addition to these activities, the Information Service’s Helpdesk provides routine technical support to the University community. Although faculty perceptions of this support have been somewhat negative in the past, there is evidence of this support being improved.

A reaction to inadequate support from Information Services in the past has been the establishment of discipline-specific technical support. For instance, the Faculty of Education and the Faculty of Arts and Science provide their own technical support technicians dedicated to the respective needs of the Faculties. Perceptions of the presence of this localized support are quite positive.

5.3.2 WebCT and Instructional Design Support

On-line course development support has been a recent addition to the University. Recently, the University has hired 21/2 full time equivalent instructional designers to support the growing needs. Additionally, a dedicated WebCT support position has been added. Although the official support is growing, this recent hiring represents only a patchwork solution to a growing problem. Participants see the
need for a technology centre that coordinates and provides support for all campus activities. This is discussed in the next section.

5.3.3 The Proposed Technology Learning Centre

As was mentioned earlier in this thesis, the University is contemplating the development of a Technology Learning Centre (TLC). The purpose of this Centre is to coordinate many of the separate support services in conjunction with the many isolated efforts demonstrated by faculty to integrate technology in teaching and learning. The Centre in effect may be a smaller version of the University of Calgary’s “Learning Commons” (http://www.ucalgary.ca/commons). Calgary’s Centre is separated into three distinct areas based on function. These include “faculty development,” “technology services” and “research and dissemination”. The real strength in this particular model is that it is tied closely to the support of two main institutional activities; teaching and research.

5.3.4 Discussion and Recommendations for the TLC

Based on the outcomes of this study, the University should develop a Centre similar in function and design to the Calgary Learning Commons. Several committees within the University have already endorsed the structure. However, this study is important in that it not only identifies the development of the Centre as a need, but it informs the ideal purpose of the Centre and the processes needed to develop and establish its important function.
This research indicates that the lack of communication and coordination of technology-related activities hinders future initiatives regarding instructional technology. A recent University publication states, “It is, in fact, surprising to see the extent to which Technology-Enhanced Learning is flourishing at the University given the challenges which are faced. ... support for on-campus courses is often rudimentary and sometimes does not exist for certain activities, there has nonetheless been a steady rate of adoption for use of Technology-Enhanced Learning tools” (Reference Withheld). This statement, and supporting research, suggests an important idea. Faculty see the great potential for technology in teaching and learning and will most likely continue to move forward with or without the University’s assistance. With this in mind, it is clearly in the institution’s best interest to look closely at these activities, to provide vision and shape for these ideas and to move forward with a Centre that provides support and coordination.

5.3.5 Marketing of the Technology Learning Centre

Marketing the Centre will be equally important. Developing the Centre does not satisfy the need for communication in itself. Chaffee and Jacobson (1999) define key steps administrators must take to effectively market programs. “Bring oral, written, and visual information into meetings, speeches and newsletters. Bring in guest-speakers to make key points that pertain to them (users)” (p. 241). These types of activities will make the Centre active and relevant for faculty. Related to
this point, both Sarah and Faith brought forth concerns regarding the public relations and marketing of the Centre.

**Sarah:** It’s partially PR (public relations). The institution needs to show us an advantage, explain to a faculty member that there might be some reason you would want to go for three hours and do some training. Personally my advantages are doing more in less time. (Interview, April 19, 2001)

**Faith:** And whoever directs the Centre, whoever is in charge, he’s got to understand in the beginning ... and has to be able to educate faculty as they come. He can go to faculty meetings and has to be able to say, “This is what the Centre can do. And this is what it can’t do.” (Interview, April 20, 2001)

From these data and the principles in section 5.2.4, it is clear that a successful director for the Centre will be a social leader. The responsibility for marketing the purpose of the Centre and the public relations activities that ensue must be carried out by an individual with distinct social qualities.

### 5.3.6 Technology Learning Centre as an Enabler

It is important that the Centre itself must be an enabler of the vision and should not be a directing body. From the participants’ comments regarding the TLC, this idea is viewed as highly important. There is a strong sense that the Centre must be run by common goals, and not overrun by an individual or one group’s interests. Here, George speaks of the tension that must exist between his group (Information Services) and the Technology Learning Centre.

**George:** We’re not the user, we are the supplier of technology. And that creates a tension that I think is positive. Because that means we can drive the TLC in directions that it may not go itself. And they (other groups, faculty) can drive us in ways that we might not go
ourselves. And if you don’t have that tension … it won’t work. … Otherwise it becomes dominated by the individual. (Interview, April 19, 2001)

Senge (1990) refers to this idea as a “creative tension”. Hughes and Zachhariah (2001) also bring this idea to light. They write, “Only when members are treated as stakeholders and actively participate in articulating a clear understanding of the tension between the current reality and a shared vision of where they would like to be will they develop a commitment to change” (p. 2). This clearly reinforces both the need for a strong vision and the collaborative approach to achieving it.

In a more practical sense, the “creative tension” nurtures the team-approach. A recent University document states, “Course instructors are the “content experts,” but the instructors cannot be expected to have complete knowledge of all aspects of Technology Enhanced Learning, especially when this involves the creation of on-line courses” (Reference Withheld). Such collaborative models flatten the hierarchical structure for which universities are renowned. This dependence on other team members may not be welcome by all faculty, but most participants of this study had favourable experiences.

The development of a design conversation will add to the shared development and conscious awareness of the university’s vision for the integration of instructional technology. As is implied above, the stakeholders must include faculty, instructional designers, librarians, administrators, support-staff and students. Two of the participants from
this study mention a common meeting area where this type of conversation might occur.

**Uncle:** Each area has their own specific mandate, and yet there has to be a centralizing and coordinating group. ... There has to be some kind of office that helps people work together. (Interview, April 13, 2001)

**Mark:** There needs to be somewhere that is a common meeting space, where you have all of the academic enterprise together. And because we are a support unit that is I would hope critical to the research process, we should have a presence in that environment. (Interview, April 19, 2001)

The current push towards the development of a “Technology Learning Centre” (TLC) can address some of the perceived problems within the institution regarding the lack of communication among participants. Consequently, the TLC may have the ability to provide solid support to faculty and staff concerned with the integration of instructional technology into teaching and learning. However, it is important to involve all stakeholders early in order to reach this outcome. Ellsworth (1997) writes:

The first thing to remember in planning educational change is that ours is a social enterprise. It’s easy to focus on implementation and forget the other people whose activities will affect and be affected by the changes we advocate. (p. 2)

The people Ellsworth refers to and the importance of the roles they play will be discussed in the next section.
5.4 Institutional Vision for Instructional Technology

Research Question 3: *Is there an institutional vision for the appropriate use and support of instructional technology?*

As outlined in section 4.4.4, it is clear that a vision for technology in this institution is not apparent to participants. This conclusion is supported by participants’ varied perceptions of administrative endorsement on the use of technology in institutional activities.

5.4.1 First Steps: Genesis of a Vision for Instructional Technology

In the study, several participants felt absolutely no pressure to use technology, while others perceived the pressure to be excessive in relation to other important core activities. With the absence of a clear written vision statement concerning the vision for IT, faculty perceived administrative action, or the lack of, as the best lens available to view the stress placed on the use of technology. Through this lens, participants identified inconsistency in the administrative mandate regarding the use of IT and the related support offered.

However, what is clear is that many faculty and support staff have acted as leaders in the use of technology in teaching and learning. As noted in the University document cited in section 5.3.4, participants continue to move forward even without the strong support they desire. I believe it to be important to draw the experience from this group of innovators to help form a vision for instructional technology for the institution.
5.4.2 Stakeholders and a Design Conversation

Jenlink and Carr’s (1996) strategies for conversation could be adapted as a powerful mechanism for the creation of a common vision. Here, four of these strategies are revisited briefly related to the context of this institution.

1) **Make the commitment to change of the system rather than change within the system.**

As the support for instructional technology has been piecemeal up to this point, I believe that the University is ready to approach the topic of support from a renewed position. This is evident from the approach taken toward the development of the Technology Learning Centre. My only caution on the approach of the new Centre comes from a common sense metaphor; one does not fix a new car with old parts. I believe that the development of the Centre is a great opportunity to reevaluate support services that are not entirely efficient or necessary, or to create new ones that are.

2) **Identify and select a facilitator for systems design who will assist the stakeholders.**

This point fits well with the idea of an academic leader being a social actor. The qualities of an academic leader are discussed in section 5.2.4 and suitably apply here.
3) **Identify the voices that are to be authentically represented.**

This idea is discussed thoroughly in Section 5.7

4) **Focus on building a conscious collective mindfulness of community through a dialogue that creates a common sense of purpose and shared vision. (pp. 36-37)**

Although this concept sounds more esoteric than practical, it summarizes the whole idea around the purpose of the vision. Faculty and support staff perceive the need for a shared vision that unites their driving purpose. Participants need a clear, common sense answer to their raison d'être.

5.4.3 **Communicating the Vision for Instructional Technology**

Once this vision is defined, it must be communicated. However, the lack of communication between individuals and groups was identified as a significant problem within the institution.

**Uncle:** Probably the biggest problem is one of communication, just communication around the whole issue. We're still dealing with hierarchical models within the University ... Things are happening so fast in the field of technology, that communication is really important. (Interview, April 3, 2001)

Communication must be improved and maintained through the establishment of an on-going conversation around the key issues. Ideally, the conversation must be open to those who are the early innovators as well as those who are encouraged to begin using technology.
5.5 Professional Development

Research Question 4: What professional development provisions are available to promote and support the instructional use of technology by faculty?

5.5.1 Focus for Professional Development

Several ideas emerged from the participant interviews regarding faculty professional development. One of the most important ideas is identifying the purpose for faculty professional development. Although faculty do need to acquaint themselves with basic aspects of computer technology, this should only form a small part of professional development initiatives. Several faculty suggest that professors should not be deeply concerned with the technology itself and should use their time and energies to focus more directly on the use of technology for enhancing teaching and learning. Ideally professional development should be structured towards achieving pedagogical goals rather than ultimately providing technical know-how.

5.5.2 Marketing Professional Development

With this idea in mind, the marketing aspect of professional development (PD) opportunities is also important. Although, it might make financial sense to generally lump faculty PD with staff PD, this is only appropriate when both groups have the same intentions for the use of technology. Study participants reflect that they prefer PD that informs pedagogy and has direct implications for the improvement of teaching,
learning and research. Professional development that is marketed and developed to suit general needs is viewed as less attractive. Most faculty view technology as a tool that can be used for specific problem-solving activities. Thus, professional development opportunities need to be marketed accordingly.

5.5.3 A Model for Professional Development

The importance of information management emerged in the interviews several times. Accordingly, professional development must serve to develop faculty skills needed for effective information management. While professional development can help to develop this craft with group seminars, faculty would find it ideal to work directly and individually with information management experts (e.g., library staff). What is perhaps more important to consider is that faculty view themselves at many different stages of technological literacy and skills development. This idea needs to be addressed with an individualized professional development model that supports faculty at different stages.

A good example of level dependent PD comes from Noon (1999), and was discussed briefly in the second chapter. His four-stage model would be ideal for technology adoption for faculty at different stages of development. Faculty professional development programs that utilize such an individualized approach can establish clear objectives for participants that are assessed at each of the stages. Professional
development staff can then employ individualized training programs aimed at helping faculty progress through the successive stages.

5.5.4 Professional Development and the Role of Library

With the emergence of the information age, library services are becoming more important than ever. However, it was clear from the research that the traditional role of libraries must be revisited. Two major ideas emerged from the interview with the library administrator, Mark. 1) Library services must become more proactive and find ways to effectively market their services, and 2) library staff must become more aware of and involved with the academic process.

As explained in section 4.5.5, many view libraries as simply storehouses of information. With the vast amount of information available in print and online forms, the future role of libraries will be built on staff made available to evaluate and maintain information resources. Additionally, more staff must be free to work closely with faculty. The ability for library staff to work closely and individually with faculty should be identified as a valuable approach to professional development, especially if administrators subscribe to a model such as Noon’s (1999), which focuses sharply on individual needs and levels of competency. The institution's library administrator sees this type of approach as a real possibility.

Mark: By streamlining the management of traditional libraries and consolidating storage of collections, in theory we should be able to free more staff to be in the field with faculty. (Interview, April 19, 2001)
The strong marketing of library information services and staff, librarians made available to leave the library to join planning processes and the increased awareness of faculty to the role and expertise of library staff are factors that must be considered to increase the viability and visibility of the library and to ultimately increase their capabilities in a support and professional development role.

5.5.5 Professional Development Recommendations

Effective professional development (PD) programs will prove important in allowing additional participants to contribute to the vision. Technology itself must be perceived as a tool and programs should focus around problem-solving activities. Additionally, due to the various levels of competencies found in the institution, individualized assessment and specialized learning plans would be beneficial. The strategies identified by Noon (1999) might be helpful in adopting individual focused targets for competency.

Another major recommendation for professional development is to place the focus on pedagogical issues rather than skills-based training. Obviously, the skills factor is important, but the focus should change once a base competency is achieved. Technology must not drive the learning process.

Additionally, professional development must be marketed appropriately and well. There appear to be many faculty who would like to participate, but who are unsure of where to begin. Professional
development must take a proactive stance and approach faculty to participate. Uncle seems to agree.

**Johnny:** There is the historical inertia problem. There seem to be a lot of faculty who are interested in this (technology-enhanced learning) but it’s hard to get over that first hurdle. (Interview, April 3, 2001)

Finally, a key consideration relates more specifically to faculty self awareness within the political environment. Not much progress related to professional development is possible until many faculty members reconsider their role as the expert. Throughout this research, faculty are referred to as content-specialists. However, the self-perception of expert can at times be a detriment to the collaborative approach and ultimately to teaching itself. Ideally, faculty and support-staff need professional development that encourages them to collaborate and that supports the construction and maintenance of a shared expertise.

5.6 Serendipitous Findings: Understanding and Acknowledging Roles

It is clear from this research that individual roles must be understood. Roles of faculty, instructional designers, librarians, etc., are dynamic, and it is difficult to collaborate without understanding each individual’s role. In the sense of “making widely known,” the roles of participants must be celebrated. In the knowing and understanding of each role and perspective, the collaborative process will prove to be more effective. As is clearly evident from the study, communication among faculty, administration and support-staff along with the understanding of
each role is an issue affecting the quality of instructional technology support. My assumption from section 5.2 is that higher education is indeed changing. In each of the following subsections, I will discuss these perceived changes as they apply to the following roles.

5.6.1 Role of Faculty

Although several faculty perceived their role to be changing slightly, what remains constant are the traditional pressures and obligations that remain integral to an academic position.

George: Well, they talk about teaching, research, public service and administrative activities as a being a distant forth. (Interview, April 9, 2001)

In some cases faculty perceived their role to be changing very little and technology was merely an add-on to their expected participation and workload. Brigitte’s comments might reflect a few of the individuals’ opinions when she reports, “No, it (instructional technology) has probably made it (teaching) a little harder, but it’s made it definitely more interesting” (Interview, April 5, 2001).

However, a few of the more experienced technology users have begun to see a shift in the role of faculty. For instance, Uncle identifies that faculty members should now become managers of learning. This is relevant because one of the key difficulties identified by the participants was the management of the overwhelming amount of informational material now available on the World Wide Web. Additionally, Sarah identifies key deficits in the degree of technological literacy among
faculty. Aligned with the thoughts of Uncle towards management and Sarah in regards to information literacy, the literature reports a trend towards faculty becoming “symbolic analysts”.

Ultimately, the faculty role in using technology will be influenced by their participation in the visioning process. However, as important as the actual role is the perception, understanding and self-actualization of that role. This idea takes two significant directions. 1) Faculty must understand their role with instructional technology in order to feel secure regarding tenure and promotion (discussed further in 5.3.2). 2) Support staff must understand the role of faculty and must respect the pressures felt by faculty. Of course, ultimately the respect must also be reciprocated.

Faith makes an interesting and memorable observation regarding faculty and support roles.

Faith: They (faculty) are the ones who will think their job is more important (than the role of support staff), when it isn’t actually. It’s only another cog in the wheel. It’s like teachers who think that the janitor is less than they are. If somebody doesn’t keep the heating plant running, you’re not going to be teaching. If somebody doesn’t dig the dang skunks out from under the school, you’re not going to be teaching. (Interview, April 20, 2001)

All roles and the understanding and appreciation of roles are important to attain the University’s vision. This is precisely the reason why full participation is so very important.

5.6.2 Role of Instructional Designers

Melissa: And that’s why I didn’t object to their criticisms, because they were reasonable; they didn’t ask me to do anything that was
wrong, they were only looking after my best interests so I didn’t look like a fool once something was put up. (Interview, April 11, 2001)

This short remark by Melissa regarding the support she received from the instructional designers captures many of the different ideas that evolved regarding the role of these support-staff. In section 4.4.3, Melissa describes the relationship between faculty and support staff as delicate. The data analyzed in the study very much indicated that an effective instructional designer is able to communicate with faculty, manage instructional activities, enable faculty to remain in the course and to inform the faculty as to what is possible.

Communication is a key aspect of the instructional design process. As I endorsed the idea of design conversations ultimately for the visioning process, I also acknowledge its relevance in the discussions between faculty and instructional designers. Rowland (1996) uses the metaphor of lighting a fire to symbolize the coming together of ideas towards productive ends. As I have alluded to previously, Rowland also recognizes the importance of understanding each other’s roles and background.

One of the more difficult tasks in designing is getting started. The design team members need to understand and appreciate each other’s perspective and expertise, to formulate coherent goals and agree on process, and to create channels of ongoing communication. (p. 42)

Rowland explains that many early meetings are characterized by starting and stopping, circling, floundering and even bickering. Yet what needs to be understood is that underlying the discussion, participants simply
want their perspective to be valued and want some say in the direction the project is taken. This needs to be recognized.

Instructional designers also sense that project and time management is an important part of the team approach.

**BassTech:** Whenever I work on a team, the first thing I say is ‘Who is the project manager?’ Because if we are going to set timelines, somebody has to be in charge of enforcing the timelines and making sure that they are realistic and that people are able to meet them. (Interview, April 25, 2001)

Often it seems that the instructional designers take on these management duties. This is ideal, as the designer often has more experience in the design process and may better understand the technology related time-lines. Additionally, these relationships might serve to balance the unequal distribution of power that exists between faculty and instructional designers. However, as observed, some faculty, may feel uncomfortable with this type of relationship. BassTech explains the importance of collaborative planning and being open.

**BassTech:** Planning. A lot of planning, establishing guidelines right away, and discussing the project realistically and honestly (these are important elements of the project). I don’t think it helps anyone if you try to gloss over things and you tell them it’s going to be the greatest experience they’ve ever had in their lives because most if it’s going to be a very rough ride. When you are developing a course ... everyone bleeds. (Interview, April 25, 2001)

Third, one of the most important considerations for the instructional designers should be in “keeping the professor in the course”. This idea can take essentially three forms: increasing student/instructor contact,
adding value to student/instructor contact and designing course materials with the instructor’s personality in perspective.

On the lowest level, traditional programs are concerned with contact hours; that is, human contact between instructor and student. Of course, through technologies such as ClassPoint and web-based lessons using streaming video, many contact hours can be virtual. Although the quality of contact is not optimal, most would agree that it’s usually better than having no contact at all.

A second key approach is using instructional technology to add value to times of contact.

**Roy:** I think one of the advantages of doing it this way -- and for example, planning a course well in advance and making all the notes available well ahead of time on the website, which is what I do, is that that frees me when I go into the room to teach, because they have already got all the notes. So you can go off on a riff on some line of a poem or you can say, 'You know, look, I've done all of these notes for you today, but all I really want to talk about is what's in the last paragraph. So let's spend 50 minutes or 75 minutes on that.' (Interview, April 17, 2001)

The instructional designer can significantly add to the value of the contact hours through helping the professor plan and organize educational materials well before class time. This adds much value and places emphasis on the contact hours and not the technology.

Third, the instructional designer can help ensure that the personality of the instructor stays in the course. This is often a debatable point as some universities envision the development of canned courses, which tend to be void of any mark of the facilitator. However,
most of the participants felt that a canned course would be less effective for the learners for the simple reason that faculty would lose interest and feel little stake in the teaching of a pre-developed course.

**Roy:** And I would think that would be deadly, from my own point of view. I would lose interest immediately if it were canned. (Interview, April 17, 2001)

Finally, instructional designers are best able to inform the design process and must be able to make aware to faculty in fact is possible. Although many faculty are interested in the technology itself, most are not concerned with the mechanics of how things work.

**Johnny:** And I’m not convinced that a lot of faculty should be concerned with, necessarily, in learning the nuts and bolts about -- you know, how you put a graphic in a table and, you know? (Interview, April 1, 2001)

Faculty need to be able to perform their role as teacher and manager of learning above all. Working closely with instructional design staff will help to make this role possible.

5.7 Conclusion

“Information Technology has been described as the handmaiden of change - because it supports and enables organizational innovation and evolution” (Bruner, 1997, On-line). Interestingly enough, “Crisis” is also referred to as the “handmaiden of change” (Shaw, 2001, On-line). From the data analyzed in this study, I believe it fair to suggest that the participants may view either of these assumptions as reasonable. Some may even suggest that their experience with technology could often be
described as one of crisis. Whether one is of the opinion that educational technology is the panacea for higher education or that technology is an impending yet unwelcome catalyst, the fact that cannot be disputed is that the introduction of information technology into an institution has often a drastic systemic effect on all of the participants and non-participants.
6.1 Considerations for Future Research

In reflecting on the interviews I had with faculty, support staff and administrators, I have been able to identify support-related issues and make recommendations for overall improvement. This study has made me aware of the complexity of these issues. In fact, I believe that the use of qualitative analysis was ideal in making apparent how human-oriented these issues really are. Therefore, there is an opportunity for research to look closer into human relations and conversations surrounding the underlying support issues.

6.1.1 Creation of a Vision for Instructional Technology

As was evident throughout the study, participants believe that the vision for instructional technology within the institution is highly regarded as a key factor in administrating and implementing technology integration in key institutional activities. This research endorsed design conversation among significant stakeholders as a key process in establishing and sustaining this vision. Further research into the process and creation of this vision in respect to its perception, evolution and actualization would be very relevant.

6.1.2 From Vision to Technology Learning Centre

Participants see the need for the development of a Technology Learning Centre. A recent University publication recommends that the development process begin and it seems likely that the centre will
become a reality. There are a number of research-related activities that should run laterally to the development, implementation, management and design of the Centre. Approaches that would be of interest and relation to such a study include:

1) The development and implementation of the Centre in itself is of great interest, and one that could engage further research. Although many institutions have already developed their own centres, there are many institutions, like this one, that are in early stages of development. It would be very interesting and important to document and analyze the step-by-step process of creation from the very initial conversations of the concept to the dynamic perception of service and utility in years to come.

2) Participants were quite clear that support for instructional technologies is currently insufficient and the services that are available are often not well known. It would be relevant to analyze perceptions of support currently, and compare this data to perceptions of faculty and staff once the Centre is fully implemented. The perception of support and the relation to the number and quality of instructional technology activities by faculty would be vital in assessing the overall success of the Centre and in further ensuring its effectiveness.

6.1.3 Student Perspectives

The perspective of students has been purposefully omitted from this study but implied throughout. For instance, the idea of the instructional designer helping to keep “faculty in the course” could just
as well have been phrased “ensuring the richness of faculty and student interaction”. However, the entire IT paradigm “is a revolution in human communications” (Katz, 1999, p. 113). And really, the entire context for this entire study, (the use of technology in the classroom, faculty perceptions of support, etc.) are all fundamentally tied to student-centric ideals and processes.

The student perspective could be useful in a number of research areas. In particular, the Technology Learning Centre and its perceived effect on faculty performance, and the quality of course delivery and content, should be tied explicitly with student perceptions. The key question around the functionality of the TLC should reflect how the Centre is ultimately meeting student needs.

Uncle: I think that the model ... is based on sound pedagogical practice and putting the student at the centre of the learning paradigm. Because those are the things that won’t change. Students’ needs will change but best practice around meeting student’s needs won’t change. .... Using whatever technology comes along ... you will still be answering some key questions ... so don’t put technology at the Centre of the model. You put the student there ... and use the technology as a tool. (Interview, April 3, 2001)

6.2 Personal Reflections on this Study

One of the most difficult tasks in doing this research was at the clear at the onset. How does one choose one particular topic of study in a field that is so incredibly large? On a professional and personal basis, I deal with many aspects of instructional technology, teaching and
learning. How does one choose one particular strand and attempt to ignore the others?

However, at the beginning of the interview process, I soon felt that I was on the verge of a very powerful study. I found that the use of instructional technology is a very personal topic and that the exploration of perceptions was the ideal approach. It affects the lives of faculty and support staff on a daily basis. It has become embedded deeply within the academic culture. Technology has become ubiquitous both on campus, and in the daily routines of many participants. The most amazing thing to me is how quickly all of this has occurred.

This study could have been about finding the perfect professional development approach or the evaluation of student outcomes related to technology use. However, it soon became apparent that a study related to instructional technology as a personal issue had the most relevance to my own professional, personal and research goals. The findings related to how we can better communicate with colleagues in the University and how instructional technology affects the lives of those who use it, were the most relevant to my own personal and professional growth.

6.3 A Final Word

As is clear in Uncle’s final statement, faculty and student relationships and the placement of the student at the centre of the learning paradigm are key to best practice. Technology is a tool that, if used wisely, allows us as teachers to teach well. A university’s vision for
instructional technology, an institution that is supportive of faculty’s innovative approaches, and an environment rich in open conversation and exploration are key to the success of a healthy learning model in the digital age.

Merriam-Webster’s Collegiate Dictionary (1993, p. 234) defines magic as “possessing distinctive qualities that produce unaccountable or baffling effects.” From the interviews with participants, it appears that technology often does in fact produce effects that remain true to this definition; however, one might assume that this is not always a favourable outcome. Technology in teaching should be perceived as being seamless and non-intrusive to the educational environment, which in essence, may appear to be magical. However, after conducting this study, I would agree that there is little magical about the appropriate use of technology. A solid infrastructure, extensive research, professional development and strong consistent support must exist behind every professor using the tools of technology. Without this support, a magician’s craft may be soon lost.
REFERENCES

Journals and Electronic Publications:


Ethics Committee Application  
(NOTE: Some Data Has Been Omitted To Ensure Confidentiality)

1. Name of researcher: Alec Couros  
   Supervisor: Dr. Richard Schwier
   
   1.1 Type of Study: Master’s Thesis  
   1.2 Anticipated Start Date: Immediately  
   1.3 Expected Completion Date: August 31, 2001

2. Title of Study: An Examination of Best Practices of Teaching and Learning with Technology in Higher Education

3. Abstract: The goal of this research is to inform the researcher, the field and this institution (Omitted) on the best practices in the development and implementation of support services regarding instructional technology in teaching and learning.

Specific key questions include:
   a) What are considered common elements of the best (emerging) practices regarding the use of technology in teaching and learning?  
   b) What are considered common elements of the best (emerging) practices regarding the processes used to implement technology in higher education?  
   c) What common characteristics (teaching/learning style of students/faculty, institutional support, and technological infrastructure) exist in the institutional environments in which best (emerging) practices are found?

4. Funding: There are no funding resources for this research.

5. Participation: Subjects will include six experts in support areas of instructional technology implementation at the University of (Omitted). These subjects will include: an information technology official, an educational technologist, an instructional designer, a faculty member, an innovative academic leader and a university librarian. These subjects will be involved in semi-structured interviews. An additional 5-10 subjects will be drawn to develop a focus group. These participants will be faculty members who possess a good to strong familiarity in the use of instructional technology at the university in classroom teaching situations. Potential participants will be contacted by the researcher via a written letter of invitation to participate as a subject in the research project.

6. Consent: Participants will read and sign a Consent Form (attached) indicating their willingness to participate in this research project. The form will indicate that there is no risk to the participant, and that they may withdraw from participation at any time. They will also be informed that they will not be identified in any way as all subjects will be identified in the research by a pseudonym.

7. Methods/Procedures: The conversations of participants will be recorded on audiotape. Pseudonyms will be established for each participant before the data is transcribed to a Microsoft Word text document. The focus group will also use an html-based bulletin board administered by the researcher. The bulletin board will provide secure user login & password access. Only members of the focus group and the researcher will have login/password access to this dialogue. All information will be held in confidence and will not be traceable to the individual participants.

8. Storage of Data: Original tapes, data files, the bulletin board data and any printed transcripts will be retained by the researcher in a secured environment for a period of
five years and then be destroyed. The data will not become public. Only the researcher, his thesis supervisor and committee will have access to the data. Participants will have access to transcripts of their interviews and of all focus group data in which they are participants.

9. Dissemination of Results: The data collected will be used as the basis for a Master of Education thesis.

10. Risk or deception: No risk or deception is involved as participants will be fully aware of how the data collected will be used.

11. Confidentiality: Confidentiality and anonymity will be fully protected. Data within written transcripts will be identified by a pseudonym chosen by the participant at the time of interview. All names of participants will be changed and anything that might identify the participants will be removed once the thesis is written. Focus group participants will be chosen from a large pool of individuals to ensure anonymity. Although experts are chosen from a smaller pool, all reasonable measures will be made to make certain that the subjects cannot be identified by position. Expert subjects will not be identified or referred to by their specific title.

12. Data/Transcript Release: Each potential participant will receive a letter outlining the purpose of the research, what is involved in the research, the time commitment of the participants, and an invitation asking them to participate in the project. (attached). The participant will be informed of their right to withdraw from the study at any time, and if one does choose to withdraw, any data that has been collected from or regarding that individual will be duly destroyed.

13. Debriefing and Feedback: Each participant will be debriefed after their involvement as to allow the clarification of any potential misinterpretations. All results will become part of the thesis and will be available once successfully defended and released to the general public.

14. Signatures of the applicant and Supervisor:

_______________________________
Alec Couros (Master’s student)

_______________________________
Dr. Richard Schwier
Faculty Advisor

_______________________________
Jessica Latshaw
Department Head, Curriculum Studies
APPENDIX B: ETHICS APPROVAL
The University Advisory Committee on Ethics in Behavioural Science Research has reviewed the Application for Ethics Approval for your study "An Examination of Best Practices of Teaching and Learning with Technology in Higher Education" (01-50).

1. Your study has been APPROVED subject to the following minor modifications:
   - Your application indicates that participants will have access to the transcripts of their interviews and their contributions to the focus groups. Please verify that participants will have the opportunity to review their transcripts and to add, alter, and delete information from them. They should be informed of this fact in the consent form. After they have reviewed their transcripts, participants should be asked to sign a transcript release form. Please submit a copy of the transcript release form that you plan to use, prepared as per our guidelines.
   - Please modify your consent form as follows:
     i) Your form states that “a copy will be provided...if you prefer”. Please ensure that a copy is provided to all participants.
     ii) The consent form should indicate that the research has been approved by the University of Saskatchewan Advisory Committee on Ethics in Behavioural Science Research.

2. Please send one copy of your revisions to the Office of Research Services for our records. Please highlight or underline any changes made when resubmitting.

3. The term of this approval is for 5 years.

4. This letter serves as your certificate of approval, effective as of the time that you have completed the requested modifications. If you require a letter of unconditional approval, please so indicate on your reply, and one will be issued to you.

5. Any significant changes to your proposed study should be reported to the Chair for Committee consideration in advance of its implementation.

I wish you a successful and informative study.

Valerie Thompson, Chair
University Advisory Committee
on Ethics in Behavioural Science Research

VT/bk
APPENDIX C: EXPERT PARTICIPANTS ETHICAL CONSENT FORM
Dear Colleague,

As a research project for my Master’s Thesis at the University of Saskatchewan, I am planning to do research on the topic “An Examination of Best Practices of Teaching and Learning with Technology in Higher Education”. The intent of the study is to research the current status of instructional technology support services in this institution. As a result of the research, I hope to gain insight into what is necessary to develop, improve and sustain an institutional model regarding instructional technology support services.

The purpose of this letter is to invite you to participate in this research project. A portion of this research will be to interview those identified to have a significant role in the support & development of instructional technology from within the University of (Omitted). Your involvement would be to participate in one (approximately one-hour long) semi-structured interview as to allow the researcher to collect data primarily related to your involvement with instructional technology, and allow you to express any concerns or issues regarding IT as seen from your perspective.

In the interest of privacy, all precautions will be taken to protect the anonymity and confidentiality of all data collected. Each participant will be given a pseudonym and any data that may act to identify him or her specifically will be removed. Specific data will be accessible to my thesis committee and myself only. Participants will have total access to the findings of the study and will be given a printed copy of the thesis and any related published materials. Information received will not be used in any way that is detrimental or demeaning to the participant. Participants will have the opportunity to review their transcripts and to add, alter, and delete information from them. Participants will have the option to sign a transcript release form before any of this data is used in the study.

I hope that you will agree to participate in this study. However, be aware of your right to refusal and the expressed understanding that if you choose not to participate in the study, this will not reflect negatively on you in anyway, and there will be no resulting issues that would arise.
from your refusal. Also be aware of your right to discontinue your participation in the study at any time. This is clearly your right.

By signing and dating this consent form, you are acknowledging that the subject of this research and the contents of this consent form have been adequately explained to you, and that you agree to participate in the study. A copy of this consent form will be provided for your records.

_____________________________  _______________________________
Dated      Signature of Participant

_____________________________
Name of Participant (please print)

Researcher: _______________________________
          Alec V. Couros

I require a copy of this consent form for my records _____ YES _____ NO

The University of Saskatchewan Advisory Committee on Ethics in Behavioural Science Research has approved this research.

Should you have any questions regarding this research, please contact:
Alec Couros
Graduate Student – Educational Communication & Technology

Dr. Richard Schwier
Faculty Advisor - Educational Communication & Technology

Should you have any questions concerning your rights as participant, please contact: the Office of Research Services - 966-8576
(University of Saskatchewan)
APPENDIX D: EXTENDED INTERVIEWEES ETHICAL CONSENT FORM
An Examination of Best Practices of Teaching and Learning with Technology in Higher Education

Informed Consent: Extended Interview/Bulletin Board Participants
Dated: March 23, 2001

Dear Colleague,

As a research project for my Master’s Thesis at the University of Saskatchewan, I am planning to do research on the topic “An Examination of Best Practices of Teaching and Learning with Technology in Higher Education”. This study is intended to evaluate the current status of instructional technology support services in this institution. As a result of the research, I hope to gain insight into what is necessary to develop, improve and sustain an institutional model regarding instructional technology support services.

A portion of the research will involve collecting data from faculty for a period of approximately one month. During this time, faculty will participate in one semi-structured interview (approximately one-hour in duration). Within the month following the interview, participants will have the opportunity to contribute to a secure electronic bulletin board. Key questions will be posted, by the researcher, to the bulletin board to promote discussion on key areas regarding instructional technology support within the institution. Participants will receive a pseudonym for these postings. After one month, I will follow-up with a meeting with each participant to discuss and clarify his or her postings and responses. Total time commitment can be estimated at approximately 3-4 hours for each participant.

The purpose of this letter is to invite you to participate in this research project. I would like to collect data from faculty who have previously or are currently using technology in some respect or form in their teaching and learning practices. You have been chosen for this reason in particular.

In the interest of privacy, all precautions will be taken to protect the anonymity and confidentiality of all data collected. Each participant will be given a pseudonym and any data that may act to identify him or her specifically will be removed. Specific data will be accessible to my thesis committee and myself only. Participants will have total access to the findings of the study and will be given a printed copy of the thesis and any related published materials. Information received will not be used in any way that is detrimental or demeaning to the participant.
Participants will have the opportunity to review their transcripts and to add, alter, and delete information from them. Participants will have the option to sign a transcript release form before any of this data is used in the study.

I hope that you will agree to participate in this study. However, be aware of your right to refusal and the expressed understanding that if you choose not to participate in the study, this will not reflect negatively on you in anyway, and there will be no resulting issues that would arise from your refusal. Also be aware of your right to discontinue your participation in the study at any time. This is clearly your right.

By signing and dating this consent form, you are acknowledging that the subject of this research and the contents of this consent form have been adequately explained to you, and that you agree to participate in the study. A copy of this consent form will be provided for your records.

_____________________________  _______________________________
Dated      Signature of Participant

_____________________________
Name of Participant (please print)

Researcher: _______________________________
              Alec V. Couros

I require a copy of this consent form for my records _____ YES _____ NO

________________________________________

The University of Saskatchewan Advisory Committee on Ethics in Behavioural Science Research has approved this research.

Should you have any questions regarding this research, please contact:
Alec Couros - Graduate Student – Educational Communication & Technology
Dr. Richard Schwier
Faculty Advisor - Educational Communication & Technology

Should you have any questions concerning your rights as participant, please contact: the Office of Research Services - 966-8576
(University of Saskatchewan)
APPENDIX E: GUIDING QUESTIONS (FACULTY GROUP)
Leading Questions – Faculty Group

1) Please provide a brief personal history include the number of years you have been using instructional technology in teaching and learning environments.

2) Describe how you currently use instructional technology in your teaching, learning, and research.

3) Describe the support you have received from the institution regarding the implementation of instructional technology into your teaching.

4) Has the support you have received from the institution, regarding the implementation of instructional technologies, been sufficient in your experience? How could it be improved? How ideally might your work with IT be further supported?

5) Identify and describe any frustrations that you may feel regarding the implementation of IT into your classroom or into the institution.

6) Do you feel that your teaching and learning environment has improved through the appropriate integration of instructional technology?

7) Do you feel that you are working harder and for more hours than in the past due to your use of IT? Has your implementation of IT made your life easier in any way?

8) What do you feel are the key issues that institutions face today regarding a model for supporting instructional technology to support teaching & learning? If a good model is to be developed, do you have any insight on how it might be sustained?

9) Can you identify and describe any barriers restricting the implementation of instructional technology into the institution?

10) Can you identify and describe any best practices regarding the use of instructional technology, or regarding the support or implementation of instructional technology?
APPENDIX F: GUIDING QUESTIONS (INSTRUCTIONAL DESIGNER)
Leading Questions – Instructional Designer

1) Please provide a brief personal history include the number of years you have been using instructional technology in the support of teaching and learning in higher education. Describe your educational and work related experience that has brought you to this position.

2) Describe how you currently support the use of instructional technology in institutional teaching, learning, and research.

3) Describe the support you have received from the institution regarding the implementation of instructional technology into your teaching.

4) Is the support that you provide within the institution, regarding the implementation of instructional technologies, sufficient in your experience? How could it be improved? How ideally might your work with IT be further supported?

5) Identify and describe any frustrations that you may feel regarding the implementation of IT into the classroom or into the institution.

6) Do you feel that your teaching and learning environment has improved through the appropriate integration of instructional technology?

7) Do you feel that instructors have to work harder to support IT in their classrooms? What sort of feedback are you given from instructors in terms of support?

8) What do you feel are the key issues that institutions face today regarding a model for supporting instructional technology to support teaching & learning? If a good model is to be developed, do you have any insight on how it might be sustained?

9) Can you identify and describe any barriers restricting the implementation of instructional technology into the institution?

10) Can you identify and describe any best practices regarding the use of instructional technology, or regarding the support or implementation of instructional technology?
APPENDIX G: GUIDING QUESTIONS (EDUCATIONAL TECHNOLOGIST)
Leading Questions – Educational Technologist

1) Please provide a brief professional history include the number of years you have been involved with information and instructional technology from a teaching, research, or administrative perspective.

2) What role or relationship have you had regarding the support, promotion, assessment, etc, of instructional technology as a teaching method or tool? Has this role changed significantly in recent years? Do you expect your role to evolve further, and if so, how?

3) Describe your role as an information technology administrator? Has this role changed significantly in recent years? Is this a static role? Do you expect your role to evolve further, and if so, how?

4) What are your current frustrations, if any, regarding the administration and support of instructional technology in regards to institutional teaching and research? Can you identify and describe any major barriers restricting the implementation of instructional technology into the institution?

5) What do you feel that the sound implementation of instructional technology can offer the institution regarding the improvement of teaching and learning?

6) New educational technologies run the risk of being oversold and producing less than promised results (i.e., ITV in the 1960’s). What strategies do you employ in order to remain competitive and consider emerging technologies while avoiding poor technology investments?

7) What do you feel are the key issues that institutions face today regarding a model for supporting instructional technology to support teaching & learning? What might an ideal model look like?

8) There has been a proposal for a New Media Centre at the University. What do you see as the role of the New Media Centre, and how might it fit with existing departments or centers (Teacher’s Development Centre, Continuing Education)?

9) There has been increased activity in the development of distance education courses in the past several years. As you know, Saskatchewan institutions are also looking at the feasibility of a virtual campus. How do these types of initiatives coincide with the philosophy or vision of the University?

10) Can you identify and describe any best practices regarding the use of instructional technology, or regarding the support or implementation of instructional technology?
APPENDIX H: GUIDING QUESTIONS (LIBRARY ADMINISTRATOR)
Leading Questions – Library Administrator

1) Please provide a brief professional history include the number of years you have been involved with information and instructional technology from a teaching, research, support, or administrative perspective.

2) What role or relationship have you or the library had regarding the support, promotion, assessment, etc, of instructional technology as a teaching method or tool? Has this role changed significantly in recent years? Do you expect your role to evolve further, and if so, how?

3) Describe your role as a library administrator? Has this role changed significantly in recent years? Is this a static role? Do you expect your role to evolve further, and if so, how?

4) What are your current frustrations, if any, regarding the administration and support of instructional technology in regards to institutional teaching and research? Can you identify and describe any major barriers restricting the implementation of instructional technology into the institution?

5) What do you feel that the sound implementation of instructional technology can offer the institution regarding the improvement of teaching and learning?

6) New educational technologies run the risk of being oversold and producing less than promised results (i.e., ITV in the 1960’s). What strategies do you employ in order to remain competitive and consider emerging technologies while avoiding poor technology investments?

7) What do you feel are the key issues that institutions face today regarding a model for supporting instructional technology to support teaching & learning? What might an ideal model look like?

8) There has been a proposal for a New Media Centre at the University. What do you see as the role of the New Media Centre, and how might it fit with existing departments or centers (Teacher’s Development Centre, Continuing Education, Library)?

9) There has been increased activity in the development of distance education courses in the past several years. As you know, Saskatchewan institutions are also looking at the feasibility of a virtual campus. How do these types of initiatives coincide with the philosophy or vision of the University? How will the library support such proposed initiatives?

10) Can you identify and describe any best practices regarding the use of instructional technology, or regarding the support or implementation of instructional technology?
APPENDIX I: GUIDING QUESTIONS (INFORMATION TECHNOLOGY ADMINISTRATOR)
Leading Questions – Information Technology Administrator

1) Please provide a brief professional history include the number of years you have been involved with information and instructional technology from a teaching, research, or administrative perspective.

2) Describe your role as an information technology administrator? Has this role changed significantly in recent years? Is this a static role? Do you expect your role to evolve further, and if so, how?

3) What are your current frustrations, if any, regarding the administration and support of instructional technology in regards to institutional teaching and research? Can you identify and describe any major barriers restricting the implementation of instructional technology into the institution?

4) What do you feel that the sound implementation of instructional technology can offer the institution regarding the improvement of teaching and learning?

5) New educational technologies run the risk of being oversold and producing less than promised results (i.e., ITV in the 1960’s). What strategies do you employ in order to remain competitive and consider emerging technologies while avoiding poor technology investments?

6) What do you feel are the key issues that institutions face today regarding a model for supporting instructional technology to support teaching & learning? What might an ideal model look like?

7) Recent initiatives such as the Evergreening of computers campus-wide promote the standardization of technologies campus wide. What benefits do you see from the standardization of campus equipment? Are there any drawbacks? Has the program been successful thus far? What other types of standardization might be necessary in the future?

8) There has been a proposal for a New Media Centre at the University. What do you see as the role of the New Media Centre, and how might it fit with existing departments or centers (Teacher’s Development Centre, Continuing Education)?

9) There has been increased activity in the development of distance education courses in the past several years. As you know, Saskatchewan institutions are also looking at the feasibility of a virtual campus. How do these types of initiatives coincide with the philosophy or vision of the University?

10) Can you identify and describe any best practices regarding the use of instructional technology, or regarding the support or implementation of instructional technology?
APPENDIX J: GUIDING QUESTIONS (ACADEMIC ADMINISTRATOR)
**Leading Questions – Academic Administrator**

1) Please provide a brief personal history including the number of years you have been involved in the improvement of teaching and in the professional development of teachers, at this or other institutions.

2) What role or relationship have you had regarding the support, promotion, assessment, etc, of instructional technology as a teaching method or tool? Has this role changed significantly in recent years? Do you expect your role to evolve further, and if so, how?

3) Can you briefly describe what your beliefs in regards to the role of instructional technology in higher education?

4) What are your current frustrations, if any, regarding the support of instructional technology in regards to institutional teaching and research?

5) What do you feel that the careful implementation of instructional technology can offer the institution regarding the improvement of teaching and learning?

6) What do you feel are the key issues that institutions face today regarding a model for supporting instructional technology to support teaching & learning? If a good model is to be developed, do you have any insight on how it might be sustained?

7) Can you identify and describe any barriers restricting the implementation of instructional technology into the institution?

8) Can you identify and describe any best practices regarding the use of instructional technology, or regarding the support or implementation of instructional technology?