Faculty Integration of Computer-mediated Learning Technologies into Teaching Praxis

A dissertation

Submitted to

The College of Graduate Studies

In Partial Fulfillment of the Requirements

for the Degree of

Doctor of Philosophy

In the Department of Educational Administration

College of Education

University of Saskatchewan

Saskatoon

By

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Abstract

The purpose of the study was to examine organizational structural, cultural, pedagogical, and economic (reward system) elements of a traditional research-oriented university for influences on faculty adoption of computer-mediated learning technologies (CMLTs). Emergent driving and restraining societal and organizational influences (Lewin, 1951) on faculty members' adoption of CMLTs were examined. Faculty members' perceptions of the extent to which university policies and practices were aligned to support the successful design, development, and implementation of CMLTs were explored.

A case study of faculty members, who had led CMLT development teams in a provincially funded Technology Enhanced Learning (TEL) initiative at one university between 2000 and 2005, was conducted in four stages. In the first stage of the study, focus groups and members' checks were held with instructional designers in order to identify potentially information-rich CMLT projects. Findings from this included an examination of the social negotiation process among members of CMLT development teams, and provided the bases for selecting faculty members to invite to participate in the study. Stage Two was a pilot of the faculty interview protocol that resulted in protocol refinement. In Stage Three, seven faculty members and one graduate student participated in interviews and members' checks of the results. Faculty members were asked to describe their motivations for adopting CMLTs into teaching praxis, any resultant changes to their scholarship of teaching, the compensation they received for time invested in pedagogical and technological innovation, and the extent to which institutional structures, cultures, and policies had supported or impeded their efforts.

Stage Four involved an environmental scan of institutional and provincial documentation of the TEL initiative as an avenue to corroborating interview data.

In this study, it was found that faculty motivations for CMLT adoption included individual responses to departmental initiatives, curricular renewal and standardization activities, personal-professional development, integrating research into teaching, enhancing student learning, increasing the flexibility of student access to learning opportunities, and improving communications with students. Participants reported a variety of resultant changes to their scholarship of teaching: (1) a shift away from traditional lectures and toward learner-focused tutorials, small group and peer-to-peer discussions, and independent learning opportunities for students accessing electronic learning resources; (2) a new or renewed interest in using innovative instructional strategies and learning environments; and (3) a new or heightened interest in researching educational effectiveness.

Organizational support for CMLT projects included fiscal support from the TEL program, and in some cases, additional funding provided by departments or colleges; project management support from the institution; pedagogical support from instructional designers; technical and aesthetic support from information technologists, media developers, graphic artists, and a medical illustrator. Organizational and cultural impediments to successful completion of projects varied across college settings. Lack of sufficient time to devote to CMLT development projects, balancing competing research, teaching, and administrative responsibilities with project activities, and therefore, coping with a mismatch between tenure and promotion requirements and necessary time commitments to CMLT projects were pervasive. Difficulties in coordinating large

development teams, the slow pace of acquiring approvals for new programs, problematic project management models, and colleagues' skepticism about and fear of integrating technology into teaching were common themes.

This study surfaced implications for organizational change that could better enable faculty efforts to adopt CMLTs. Expanding tenure and promotion criteria to include CMLT development work (Archer, Garrison, & Anderson, 1999; Hagner & Schneebeck, 2001) and revising intellectual property policies for CMLT artifacts to better acknowledge faculty efforts (Hilton & Neal, 2001; Tallman, 2000) could do much to encourage the integration of technology into teaching. Promoting educational effectiveness research studies (Chyung, 2001), and bringing CMLT efforts in from the margins to become a core activity in the scholarship of teaching (Bates, 2001) could erode current skepticism and fear about technologies displacing faculty members (Olcott & Schmidt, 2000).

Finally, in this study, theoretical implications for organizational change were posited. Traditional centralized and bureaucratic management styles are not well suited to supporting CMLT initiatives in higher education (Bates, 2001). A more distributed approach to leadership (Knapper, 2006) could better support necessary efforts to innovate, experiment, prototype, evaluate in order to incrementally improve project outcomes (Suter, 2001), create synergies between teaching and research activities, and garner faculty commitment to integrating computer-mediated learning technologies into contemporary teaching praxis.

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Acknowledgments

The completion of this study is a culmination of five years of my immersion in and study of the life spaces it describes. Thanks to my colleagues and cohort members who have shared this journey. A special thanks to Kathy Schwarz.

I wish to thank Dr. Heather Kanuka, my external examiner, for her keen insight and much appreciated advice.

My co-advisors, Dr. Pat Renihan and Dr. Richard Schwier, over the course of many years—well beyond the timeframe of this study—have provided me with the highest of bars to reach toward in my future as a researcher and a teacher.

I have had the honour of working with a wonderful academic. Dr. Murray Scharf so often provided me with succinct clarity when I most needed it. Dr. Gordon McCalla challenged me to extend the boundaries of my understanding of computer-mediated learning technologies well beyond anything I had expected to achieve. Dr. Sheila Carr-Stewart's leadership role, as chair of my committee, was exemplary.

I wish to thank all of the participants in my study for their honesty, openness, and generosity in taking time out of very busy lives to participate in focus groups, interviews, and seemingly endless members' checks.

Most importantly, I wish to thank my daughters, April and Elyse, for always supporting my efforts through a life time of learning:

Before, a joy propos'd; behind, a dream.

William Shakespeare

My *joy propos'd* is that I can now focus my loyalty on supporting your unfolding dreams.

CHAPTER ONE:

THE STUDY

In 1964, Marshall McLuhan predicted that the future of work would involve "learning a living" (p. 346); information technology would "unite production, consumption, and learning in an inextricable process" (p. 350). The "process of automation that causes withdrawal of the present work force from industry" would "cause learning itself to become the principle kind of production and consumption" (pp. 350-51). A growing body of evidence suggests that McLuhan's prediction of the emergence of a global learning society has been realized and has become a catalyst forcing complex issues to the fore in public and private organizations and in higher education.

The Context of the Study

The *new* economy, alternatively the *information* economy or the *knowledge* economy, is a powerful force driving the global learning society. Sustainable growth in knowledge-based economies has been positively correlated to educational levels of populations. UNESCO's *Analysis of the World Education Indicators* (WEI) report (2002) states, "For every single year the average level of schooling of the adult population is raised, there is a corresponding increase of 3.7 per cent in the long-term economic growth rate" (p. 8). O'Driscoll (2003) posits a causal linkage between "the capacity of [corporations] to continually refresh the competencies of knowledge-workers" and

organizational ability “to survive and thrive” (p. 12). For individuals, “typically, an additional year of schooling raises incomes 10 per cent; in very poor countries it can increase incomes 20 per cent or more” (World Bank, 2003, p. 5). Linkages among individuals’ skill levels, knowledge workers' competencies, organizational learning, organizational knowledge, and competitive advantage have been broadly acknowledged (c.f., Argyris & Schon, 1978; Alcaly, 2003; Bates, 2000; Ghosh, 2004; Huseman, & Goodman, 1999; Levitt & March, 1988; McLuhan, 1964; Norton, 2000; Senge, 1990; Schwandt & Marquardt, 2000; UNESCO, 2002; Victor & Stephens, 1994; Wenger, McDermott, & Snyder, 2002; Yanow, 2003).

Technological innovations, information-based and knowledge-based economic trends, and computer-mediated communication systems, in combination with globalization, each have contributed to conceptualizations of how the knowledge economy functions. Alcaly (2003) contends that over the past two decades, “a wide and growing body of evidence has shown that [an economic] revival [in the United States has] diffused throughout the economy, [and] that it is largely due to the use of information technology (IT) and related improvements in the way businesses operate” (p. 38). According to Alcaly, the combined economic utility of IT innovations and refinement in business practices to take advantage of these innovations in order to allow sustained effectiveness and efficiency on an extended scale is a viable definition of the new economy (p. 120). Further, Alclay predicts that a significant portion of this economic revival “is likely to be long-lasting” (p. 38). If Alcaly’s definition of the new economy and his prediction of its potential pervasiveness are accurate, then IT innovations will

continue to influence both economic activities and the larger sociopolitical spheres of society, including the educational sphere.

Norton (2000) affirms Alcaly's view with a comparable definition of the new economy: "The crux of the macroeconomic version is the idea that information technology (IT) creates higher productivity growth, which in turn permits faster growth in output without a rise in inflation" (Norton, 2000, p. 3). Norton extends his description of the new economy as an outgrowth of what he labeled, the "Information Technology Paradigm" (Norton, p. 35). According to Norton, the Information Technology Paradigm distinguishes the new economy from previous economic eras in five ways: (1) "in contrast to earlier technological revolutions, this one is about technologies that 'act on information'"; (2) "since information is a part of all human activities, all aspects of life are affected"; (3) "any system or organization using information technologies has a network logic, a logic which in turn has become more powerful because of computers"; (4) "the paradigm is accordingly based on the flexibility that networks provide"; and (5) the paradigm is marked by "the technological convergence of such formerly separate sectors as computers, telecommunications, and biology" (Norton, p. 35).

The inherent complexities of the IT paradigm, as well as its potential influence across all other aspects of life make the new economy a powerful social, political, and cultural force, as well as a pervasive economic force (Norton, 2000, p. 65). "The speed of change in the knowledge economy means that skills depreciate much more rapidly than they once did. To compete effectively in this constantly changing environment, workers need to be able to "upgrade their skills on a continuing basis" (World Bank, 2003, p. 3). The new economy's insatiable need for a well-educated and continuously learning

workforce, which can efficiently produce information, knowledge, and innovation, makes it a powerful force in the future of education.

While the new economy's reliance upon a well-educated workforce for survival and success seemingly bodes well for the future of institutions of higher education, this reliance may not translate into a comfortable relationship between the corporate world and the traditional academy. Corporate demands for knowledge workers who continually renew their knowledge for the purpose of sustaining innovation, which in turn, creates wealth, may not be attuned to traditional academy norms. The norms of the traditional academy (e.g., day-time, work-week, classroom-based delivery of instruction, fixed semesters, predetermined course curricula, durations, and offerings, and residency requirements) align more closely to periodic learning [designed to meet the needs of traditional students—"between the ages of eighteen and twenty-two and attending full-time"], rather than continual learning focused on work-related innovation [required by non-traditional students—adults combining work and part-time study] (Palloff & Pratt, 1999, p. 3).

An estimate that "fewer than one-fourth of the students on college campuses" are traditional students [defined as students between the ages of eighteen and twenty-two, who are studying full-time] (Palloff & Pratt, 1999, p. 3; See also Twigg, 1994) suggests a need for adjusting traditional practices in order to better serve the needs of a broader spectrum of contemporary learners (See also Bates, 2000; Hanna, 2000). "Residential education alone simply cannot serve the needs of today's students: it is too restrictive, it is too expensive, and it is often inappropriate" (Twigg 1994, ¶ 3). While almost all colleges and universities are in a transitional stage, and are accommodating non-traditional

students in a variety of ways (e. g., offering distance options, evening and weekend courses, placing courses and course information on the Web), there is an urgent need to accelerate the process of rethinking those university norms that hinder non-traditional students' access to lifelong learning (c.f., Barone & Luker, 2000; Bates, 2000; Daniel & Mohan, 2004; Hanna, 2000; Janicki, Schell, & Weinroth, 2002; McInnerney & Roberts, 2004; Palloff & Pratt, 1999; Tisdell, et al., 2004).

Conversely, the nature and mission of the academy may be at risk in the process of transformation from a traditional, public research-oriented university to a service-orientation academy. In the past decade, public universities across the globe have begun to experience increasingly common imbalances (i.e., "the tendency to view knowledge as a key to development of modern economies" combined with declining levels of governmental research funding, and an inability to cope with increasing enrolment pressures and calls for flexible access combined with inadequate financial support for teaching) (Daniel & Mohan, 2004, p. 1). These imbalances have precipitated "demands from various stakeholders such as government, the corporate sector and students" to adopt a service university model (Daniel & Mohan, p. 1). "The most salient characteristic" of a service university "is its similarity with a market-driven enterprise. To survive, a service university has to "develop products that are competitive in a knowledge market" (Tjeldvoll, 1998, ¶ 1). Obvious concerns about this sort of transformation include the potential erosion of institutional credibility and autonomy, and academic freedom (Tjeldvoll, 1998).

In spite of these salient concerns, the crisis of decreasing state support for public universities (Archer, Garrison & Anderson, 1999; Bates, 2000; Bok, 2003; Daniel &

Mohan, 2004; MacKay, 1996; Tjeldvoll, 1998), alternative sources of funding are urgently needed. To thrive, an academic service university needs to "be able to strike a balance between individual academic freedom, institutional autonomy, and accountability toward taxpayers and business" (Tjeldvoll, 1998, ¶ 6). While serving the interests of broader society, the academy also needs to safeguard a financial independence that "enables it to carry out its critical function in a democratic society" (Tjeldvoll, ¶ 6), ensures its ability to conduct independent research in a wide variety of disciplines, and sustains high quality instruction (Daniel & Mohan, 2004). The increasingly pervasive pressures for commercialization in the context of higher education raise complex, interrelated—and sometimes, disturbing—questions about the potential futures of the academy.

A transition from a relatively insular, state-funded public research university to an academic service university model aligned to the needs of the knowledge economy and lifelong learners includes a shift from predominantly classroom-based practice into accessible online learning environments (Daniel & Mohan, 2004). This shift transforms a relatively private experience (including only the instructor and students) into relatively public artifacts, which may be accessed by others via the Web. The transformation publicizes teaching practice, and publication may open both anticipated and unanticipated avenues of external evaluation (Daniel & Mohan, 2004) and external critique (Barone, 2003).

Transforming teaching and learning from same-place, same-time social classroom-based experiences to decontextualized educational artifacts may also be perceived as more or less acceptable from variant points on a cultural continuum (Barone,

2003; Katz & Yablon, 2002), as well as from variant points on a pedagogical continuum (Barone, 2003). Creating CMLTs requires a significant investment of faculty time and energy that could be spent on research activities. The problematic academic-economic lack of return on investment for emphasizing time spent on teaching (Boyer, 1990) may influence adoption of CMLT innovations for some faculty members. The controversy over intellectual property rights to completed CMLT projects (Hilton & Neal, 2001; Tallman, 2000) creates an additional economic consideration. Further, funding policies often require faculty members to work with collaborative teams of instructional designers and media specialists (Bates, 2000; Daniel & Mohan, 2004; Graves, 2001). This shift in faculty role from an independent practice of the scholarship of teaching to leadership of a collaborative team (Hanley, 2001) may be met with a range of comfort levels.

The Purpose of the Study

The purpose of the study was to examine four continua of university praxis for potential influences on faculty adoption of educational technologies. Specifically, the study investigated instances of cultural, pedagogical, economic, and organizational influences on faculty adoption of CMLTs. An attempt was made to discern the driving and restraining forces that influenced the adoption of CMLTs by faculty members in a traditional research university, and to determine to what extent university policies and practices were perceived to be aligned to support the successful design, development, and implementation of CMLTs.

The Questions

The purpose of the study was addressed through four questions:

1. What were the motivations for faculty adoption of CMLTs?

2. Did the adoption of CMLTs alter or influence the scholarship of teaching? If so, what changes resulted?
3. What "academic returns on investment" did faculty members receive for time devoted to adopting CMLT innovations into their pedagogical practices?
4. To what extent did institutional structures and policies support or impede successful design, development, and delivery of CMLTs?

Significance of the Study

In this study, economic and social forces currently influencing decision-making activities in traditional research-oriented, classroom-based universities were examined. The convergent influences of the knowledge age, the new economy and its information technology paradigm (Alclay, 2003; Norton, 2000; O'Driscoll 2003), and the social forces of postmodernism, the interpretive turn, identity politics, globalization, and post-colonial critiques (Lincoln, 2001; Tjeldvoll, 1998) were explored. Each of these explorations focused on increasing pressures on traditional universities to expand existing services to support a broader range of learners with increased expectations for flexible access to higher education, and to do so within an environment of decreasing public funding (Archer, Garrison, and Anderson, 1999; Daniel & Mohan, 2004; MacKay, 1996):

> The end of the cold war implied a clear ideological victory for the liberal market economy as an overall paradigm for society. It has become increasingly difficult for the state to cope with public expenditures. The welfare state is eroding, and the state has become an increasingly unfaithful patron for the university. (Tjeldvoll, 1998, ¶ 2; See also Bok, 2003; Pocklington & Tupper, 2002)

Further, the entrance of for-profit, e-learning competition into the educational sector, and the potential impact of this new dynamic on the pedagogical, cultural, economic and organizational considerations for traditional universities' policy-makers have been discussed. The emergent challenges of strategically responding to these cumulative pressures created a need for a deeper understanding of the interrelated, "complex, [and] ill-defined" issues (Kowch, 2003, p. 6) associated with the implementation of CMLTs as a strategy to move toward an academic service university model (Daniel & Mohan, 2004). The results of this study may inform the policy, practice, and theory of implementing e-learning initiatives.

The Researcher

For the past two decades, CMLTs have been a key component in my learning, as well as my teaching, librarianship, and instructional design practices. As an online learner in the initial offering of the *Instructional Performance and Technology* (IPT) Masters' program at Boise State University (described later in this work), I experienced first-hand many of the challenges students face in technology-mediated learning environments, and became one of the IPT program's attrition statistics.

During the six years I spent as a teacher-librarian and Similkameen District facilitator for the Okanagan's *Community Learning Network*, I participated in making the transitions from card catalogue to automated circulation in the library, and from pre- to post-Web browser access to the Internet. Over this time period, I incrementally integrated learning with technology into the elementary and secondary courses I was teaching. In the role of researcher for British Columbia's Open School, I examined the feasibility of teaching advanced placement courses in an online learning environment. During my

tenure as an instructional designer in the Product Development and Research Group at the Open Learning Agency, I explored the applications of structured information environments, learning objects technologies, and interoperability standards. As an online tutor for the Commonwealth of Learning, I taught an online writing course for three years to employees of the United Nations High Commissioner for Refugees, who were stationed in 26 countries. For the past four years, in the dual roles of an instructional designer and a doctoral student at a Canadian university, I have examined a variety of CMLT topics, including learner-centered design, virtual laboratories, e-learning systems, and learning agent applications.

Worldview and Philosophical Stance

I acknowledge my worldview includes a belief in the existence of multiple realities, which are meaningful in the study of human behaviour because humans interpret meanings (Guba & Lincoln, 1999; Richardson, 2004). As individual constructions of meaning may coalesce around consensus, my intent has been to explore CMLT communities of inquiry and practice to discover if or to what extent congruent experiential, propositional, and/or practical interpretations (Lincoln & Guba, 2000) of cultural, pedagogical, economical, and organizational phenomena may influence the adoption of CMLT innovations into academic praxis. I have conceptualized "a backdrop of shared understandings, practices, and language" (Schwandt, 2000, p. 197), against which a rich and thick description (Merriam, 1998) of faculty constructs of if or to what extent CMLT commodities add value to or erode the quality of teaching and learning experiences. Thus, I assumed a social constructivist philosophical stance in the collection, analysis, and interpretation of data for this study.

Conceptual Framework

At each stage of this study, existing and emergent forces from the external context and from within the university were analyzed for their potential to initiate or limit adoption of CMLTs into the practice of teaching and learning at the university. These forces are framed within a "social field" (Lewin, 1951, p. 200). A social field has been defined as an "ecological setting" in which "coexisting social entities, such as groups, subgroups, members, barriers, [and] channels of communication" (Lewin, p. 200) undergo periods of relative constancy and change. The "relative positions of the entities" within the social field illustrate their roles as either driving or restraining forces (p. 200). Driving forces have been defined as those forces that initiate and sustain change; restraining forces have been defined as those forces that restrain or decrease the driving forces.

Lewin (1951) argued that in order to successfully facilitate change, organizational leaders need to undertake a three-step process within a social field: *unfreezing*, *moving*, and *refreezing*. *Unfreezing* involves destabilizing the status quo. *Moving* includes identifying and evaluating the relative strengths of social field forces, considering available options and initiating incremental change. *Refreezing* is the process of supporting a return to a sense of stability in the changed environment.

Critiques of Field Theory as a Framework for Organizational Change

There are four predominant, contemporary critiques of the continuing usefulness Lewin's field theory as a framework for understanding organizational change. First, field theory has been criticized for its linearity, simplicity, and mechanistic approach (Dawson, 1994; Kanter, Stein, & Jick, 1992). Secondly, it has been argued that field theory can

only support small-scale, incremental change, and therefore, is not appropriate in situations where broader-scale transformational change is needed (Dawson, 1994). Field theory has also been criticized as naively excluding issues of power and politics within organizations (Pfeffer, 1992). Finally, Lewin's work has been perceived to be a top-down approach to change management, thus lacking relevancy to the culture of contemporary organizations (Dawson, 1994; Kanter, et al., 1992).

Responses to Critiques of Field Theory

While Lewin's work has undergone significant critique in the past 20 years, recent re-analyses of field theory have countered many earlier criticisms. In particular, Burnes (2004) directly addresses the body of criticisms of field theory. In response to the linearity, simplicity, and mechanistic critiques, Burnes (2004) argued that these criticisms "appear to stem from a misreading of how Lewin perceived stability and change" (p. 992). Countering the critique of field theory as being limited to isolated and incremental applications, Burnes (2004) posited, "Over time, incremental change can lead to radical transformations" (p. 993). In contrast to the view that Lewin's lack of sensitivity to power and politics issues within organizations, Burnes stated that this "seems a strange criticism. Anyone seriously addressing racism and religious intolerance, as Lewin was, could not ignore these issues" (p. 994). Finally, Burnes noted that "gaining the commitment of all concerned" (p. 995) is a critical underpinning throughout Lewin's work. Therefore, perceptions that Lewin advocated a top-down approach were unfounded because Lewin's work consistently focused on how to identify the forces within and between groups who hold variant levels of power within and among organizations.

Burnes' position on the continuing value of field theory has been supported by Elrod and Tippett's (2002) meta-analysis of change models across a range of disciplines, which provides strong evidence that more contemporary models are extensions of Lewin's model of change than those that diverge from it. Field theory was based "on building understanding, generating learning, gaining new insights, and identifying and testing (and retesting) solutions" (Burnes, 2004, p. 997), and has remained a relevant framework for understanding and managing change.

Figure 1 illustrates relative positions and strengths of driving and restraining forces, as well as changes to quasi-stationary states of equilibrium over time. Within this field theory framework, the potential for CMLT adoption to become embedded within a future state of equilibrium in the university was examined.

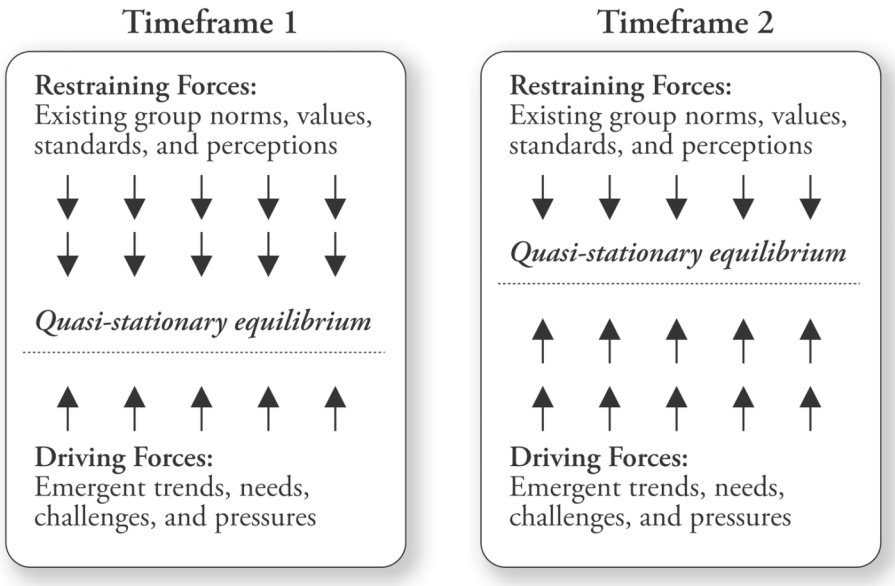


Figure 1. Change in relative strengths of driving and restraining forces over time: Adapted from Lewin (1951, pp. 198-208)

Delimitations

As this study was focused on identifying driving and restraining forces within the e-learning policy field of one academy, its scope did not encompass Lewin's full three-step model. Rather than invoking the full model, attention is paid to the first step—field analysis—because we do not yet know how the transition to e-learning in higher education within the academy under study will move or stabilize.

While CMLT initiatives may influence a variety of institutions of higher education, this study focused exclusively on a traditional research and teaching-oriented, public university. Although current and prospective learners, institutional administrative units, and media and information technology experts are also stakeholders in the adoption of CMLTs, participants in this study have been limited to university instructional designers and faculty members. The instructional designers were included in order to provide insight into potentially information rich projects, from which I, as researcher, selected faculty project leaders to invite to become participants in the subsequent study. This choice was made in order to ensure that the scope of the study "concentrated on the single phenomenon or entity" (Merriam, 1998, p. 29): one university's faculty experiences developing CMLTs through a provincially funded technology enhanced learning (TEL) program. As the researcher, I "aimed to uncover the interaction of significant factors characteristic" of faculty perceptions of the driving and restraining forces influencing CMLT adoption (Merriam, p. 29) through the use of a qualitative case study research design. As qualitative case study designs are "particularly suited to situations in which it is impossible to separate a phenomenon's variables from their

context," (p. 29), the findings may not be broadly generalizable beyond the context of the study.

A further delimitation of this study is its timeframe. Since I, as the researcher needed to establish boundaries for this study, only projects from one provincially funded Technology Enhanced Learning (TEL) program, for which the projects' development cycles fell into the 2000 to 2005 time period, were included. This group of projects is distinct because of the common macro context of the first iteration of the provincial TEL e-learning initiative and the mezzo context of one university's response to this initiative (Rowan, 2003). At the micro level, individual projects and experiences within this common context were examined.

A further delimitation of this study was its exclusion of faculty members who have not chosen to be involved in TEL-sponsored CMLT developments. Consequentially, the study was delimited to faculty who were sufficiently "like-minded" to attempt to or to adopt TEL-sponsored CMLTs into their teaching practice. The scope of invited participants included faculty members, among whom experiences included TEL-sponsored CMLT projects that had been abandoned, those that were in-progress, and those that had been completed. It was hoped that this range of project states provided the basis for a sufficient breadth of faculty experiences to comprehensively respond to my research questions.

Limitations

Participant information was gathered through focus group sessions and interviews. As focus group sessions and interview data involve the limitations of self-reports, alternative sources of data for validation was gathered through policy document

analysis. Two levels of policy statements and TEL reports, provincial and institutional, were used to corroborate data.

Limitations of Focus Group Data

Participants in the focus group sessions were instructional designers from three organizational units within the university in this study. Five of eight participants belonged to the same organizational unit as I did during this time. Therefore, long-term collegial relationships between me and the participants may have limited participants' openness to fully critique shared work, as well as resulted in shared assumptions being left unstated.

Limitations of Interview Data

Within the university under study, a broad range of colleges and departments (11 of 13 colleges) participated in TEL-sponsored CMLT projects. In the role of instructional designer in several TEL project teams, I acknowledge my stance as a complete-member researcher. A "complete-member researcher," as defined by Alder and Alder (1987), refers to researchers who are "fully committed to and immersed in the groups they study" (Ellis & Bochner, 2000, p. 741). In contrast, data were also collected from faculty members whose TEL-sponsored CMLT development projects took place at the same university, but in which I had no direct involvement, and therefore, I have also identified myself as an aware observer. My role has been delineated throughout this study by distinguishing complete-member data from aware observer data. In those areas of this study where my role was one of complete-member, a limitation of this study has been the potential introduction of researcher bias as a result of long-term involvement with participants.

The scope of individual participants' openness may have varied according to levels of project success and personal satisfaction, levels of departmental or college acceptance of the use of CMLTs in teaching and learning, and levels of comfort critiquing provincial and institutional policies and procedures, as well as project-related experiences. Of particular concern was a possible restriction of openness among those participants with whom I have worked as a team member: as a complete member researcher. Personal/professional relationships, which developed over the course of project-related activities, may have influenced some participants' willingness to fully critique shared experiences.

Assumptions

An assumption of this is study is that the transformation of relatively private and temporal educational experiences into relatively public, pervasive, and potentially commercializable educational artifacts—via use of educational technologies (Daniel & Mohan, 2004; Hanna, 2000)—may have had an impact on adoption levels.

All participants in this study were faculty members who participated in TEL-sponsored CMLT development projects. I feel confident in assuming that all participants understood CMLT terminology, were capable of reflection, were self-aware, and were able to provide a rich description of their experiences.

Definition of Terms

The literature review will develop comprehensive definitions of salient terms, which have had an impact on this study. However, it may be useful, at the outset, to provide definitions of key terms for the purpose of clarity. For the purposes of this study:

Computer-mediated learning technologies [CMLTs] are defined as inclusive of Web-based courses, discussion groups, image and databanks; virtual laboratories and exercises; simulations; as well as learning object and intelligent agent technologies.

Technology Enhanced Learning [TEL] is defined as a formally administered series of provincially funded CMLT projects, including the accompanying policies, procedures, and funding criteria for the design, development, and delivery of computer-mediated learning technologies for specific courses and resources as defined by provincial policy.

The Academic Service University Model "envisions public universities as entrepreneurial entities, manifesting the delivery of teaching, learning, and research in innovative ways" (Daniel & Mohan, 2004) and involves the use of CMLTs to expand university services to a broader range of learners.

Social force field theory assumes that "behaviour *(B)* is a function *(F)* of the person *(P)* and of his [or her] environment *(E), B = F (P. E)*" (Lewin, p. 239). In this conceptualization, "the person *(P)* and his [or her] *(E)* environment" are "considered as *one* constellation of interdependent factors," identified as a "life space" (pp. 239-240).

Life space includes "a total situation…. represented in [a] particular setting within [a] specific situation" (Lewin, p. 240). The "totality of coexisting," "mutually interdependent" data that influence a life space is "called a [force] *field*." (p. 240). Within this study, the total situation includes a technology enhanced learning initiative and the interdependent factors of university, department, and individual responses to the initiative.

Boundary conditions are the periphery of social force fields, which "exist for [an] individual at [a] particular point in time," and the "physical and social conditions [that]

limit the variety of possible life spaces," during a specific timeframe. Physical and social conditions within a specific timeframe determine the boundaries for case analysis.

Driving forces are defined as those forces that initiate and sustain change.

Restraining forces are defined as those forces that restrict driving forces.

Project blueprints are defined as the planning documents that outline the scope, goals, and deliverables for CMLT projects.

Pedagogical continuum is a range of approaches to instructional practice, including generalist and discipline-specific ways of teaching and modeling knowledge, as well as the professionalization of teaching (Bates, 2000).

Professionalization of teaching is defined as organizational provision of sufficient support for faculty to ensure the production and use of consistently high quality, creative learning resources and experiences, which in turn, enhance institutional reputation (Bates, 2000).

Cultural continuum is a range of variant social and organizational constructs based in epistemological, political-ideological, theoretical, and methodological stances (Martin & Frost, 1996), as expressed through positions on emergent issues within the context of adopting innovations. These issues may include academic freedom, and perceptions of teaching and learning events as relatively private or public.

Economic continuum is defined as reported avenues for gaining academic currency, including tenure, promotion, peer-recognition, and intellectual property rights.

Organizational continuum is defined as variant models of institutional structures, policies, and decision-making processes, ranging from centralized and hierarchical to distributed and collegial.

e-Learning is defined as electronically-mediated learning. e-Learning initiatives include the provision of computer-mediated learning resources to support classroom-based learning, distance learning, and distributed learning models.

Distance learning is defined as the provision of learning opportunities to learners situated away from a university campus.

Distributed learning refers to the provision of learning opportunities in a combination of on and off campus settings.

Commodification of the Academy includes the commercialization of research findings (Woodhouse, 2005), and the expansion of teaching services to meet the life-long learning needs of a significant proportion of working adults, at least partially through the development and distribution of potentially commercializable computer-mediated learning technologies (Daniel & Mohan, 2004; Tjeldvoll, 1998).

Scholarship of Teaching, for the purpose of this dissertation, refers to explicitly applying leaning theory to the design and development of learning resources and environments, as well as conducting discipline-based pedagogical research on the effectiveness of the resultant learning resources and environments.

CHAPTER TWO

LITERATURE REVIEW

Anyone who wishes to reproduce in whole or in part the first half of Chapter Two of this dissertation (Parchoma, 2006) must ask publisher permission for use of information from the *International Journal of Teaching and Learning in Higher Education.* Anyone who wishes to reproduce, in whole or in part, content from the second half Chapter Two of this dissertation (Parchoma, 2007) must ask permission to use information from the Idea Group.

In this chapter, Lewin's (1951) social field theory has been used as a framework for analyzing the potential for implementing scalable and sustainable CMLT adoption in the academy. Emergent needs, trends, challenges, and pressures both external to and within the academy include driving forces for making the transition from primarily place-based learning to distributed learning models. Existing group norms, standards, values, and perceptions have been shown to be potentially restraining forces in large-scale CMLT adoption. Therefore, an analysis of external socioeconomic forces, as well as internal organizational forces, for their potential to enable or limit adoption of CMLT initiatives into the practice of teaching and learning in traditional universities—framed within a social field—has been useful.

The chapter has been divided into three sections. The first section describes increasing demand for access to education and provides criteria for evaluating the efficacy of e-learning initiatives. The second section analyzed external economic and social forces

for their potential to drive and restrain e-learning initiatives within the academy. The driving forces of the *new* economy and its information technology paradigm have been discussed. The social forces of postmodernism, the interpretive turn, identity politics, globalization, and post-colonial critiques (Lincoln, 2001) were examined for both potential to drive and potential to restrain technological innovations in higher education. An analysis of the impacts of driving and restraining economic and social forces (Lewin, 1951) on the e-learning policy field has been posited. The final section examines structural, cultural, economic, and pedagogical value positions within the academy for their attunement to increasing access to higher education via computer-mediated learning technologies (CMLTs). A model of value positions for successful adoption of CMLTs in the academy to support a global learning society was hypothesized.

Learning a Living

McLuhan's (1964) prediction that information technology would "unite production, consumption, and learning in an inextricable process" (p. 350); and this process would "cause learning itself to become the principle kind of production and consumption" (pp. 350-51) has seemingly been realized. Evidence of an emergent global learning society is widespread (c.f., Alcaly, 2003; Bates, 2000; Daniel & Mohan, 2004; Ghosh, 2004; Hanna, 2000; Huseman, & Goodman, 1999; Norton, 2000; O'Driscoll, 2003; Senge, 1990; UNESCO, 2002). As learning becomes an increasingly important activity in economic, political, and social spheres, the practice of teaching in higher education needs to adapt to this shift in focus from teaching to learning:

> The emergence of a global learning society…. [demands] our approaches to creating positive learning environments must change to engage learners more directly with the world at hand. Teaching and learning strategies must meet learners where they are and build from the knowledge and understanding they bring to the learning situation. (Hanna, 2000, pp. 8-9; See also Boyer, 1990)

Global economic and social forces have been exerting significant pressures on traditional research-oriented, classroom-based universities to undergo dynamic change (Hanna, 2000; Nesbit, 2004). "Rapid technological development and economic globalization are requiring [universities] … to redefine the purposes and functions of higher education" (Nesbit, p.104). The convergent influences of the knowledge age, the new economy and its information technology paradigm (Alclay, 2003; Norton, 2000; O'Driscoll, 2003) are creating pressures on traditional universities to expand existing services to support a much broader range of learners via multi-modes of delivery, and to do so with fewer resources (Archer, Garrison, & Anderson, 1999; Bates, 2000; Daniel & Mohan, 2004; Hanna, 2000; MacKay, 1996; Nesbit, 2004). Working adults, who typically "progress through several careers," and who "encounter changing knowledge requirements that force them to learn to even stay in the workforce, let alone get ahead in life" (Hanna, 2000, p. 30) need frequent and easily accessible opportunities for continuing education. Comparably, among campus-based learners, "there has been a rapid increase in the number who are working part-time as a result of escalating [educational] costs" (Bates, 2000, p.17). Inevitably work and class schedules clash; however, "if denied the opportunity to work part-time, many of [these students] would be

denied the opportunity of higher education" (Bates, p.17). As a result, pressure for flexible access to education is mounting.

An ever-increasing choice of access to higher education is via distance or distributed modes. The Association of Universities and Colleges of Canada forecasts "a 20 to 30% increase in demand in student enrolments (particularly amongst adult, part-time, and other 'non-traditional learners')"—the groups most likely to choose distance or distributed options—over the next ten years (Nesbit, 2004, p. 104). In the United States, "course enrollments in distance education have increased … at both the undergraduate and graduate levels, increasing from 1.7 million to 3.1 million between 1997–98 and 2000–01" (U.S. Department of Education, 2004, Indicator 32, ¶ 3). Michael Moe, Director of Global Growth Research for Merrill Lynch reported that in the year 2000 there were "84 million students enrolled in higher education worldwide. Global demand for higher education has been forecasted to reach 160 million by 2025" (Moe, et al., 2000, p.2). Limitations on existing tertiary educational institutions' abilities to accommodate rising enrollments, increasing numbers of adult learners, as well as competing responsibilities in many learners' lives, have all contributed to the demand for distance learning options. If this access can be provided via online learning options, there could soon be nearly 40 million students involved (Moe, et al., p. 3).

The groundswell in global demand for higher education, and alternative modes of access to it, are just two of several "new pressures that are increasing outside the academy" (Hanna, 2000, p. 12). Paradoxically, academic leaders face a climate of "growing public disenchantment with higher education institutions, whose preoccupations and methods of operation often seem to the public to be increasingly

divorced from the needs and expectations of the wider society" (Bates, 2000, p. 9). Further, "major organizational changes and new developments in higher education are being accelerated by dynamic advances in global digital communications and increasingly sophisticated learning technologies" (Hanna, p.19). Simultaneously, "the university's monopoly on knowledge production is under challenge by several external agents" (Tjeldvoll, 1998, ¶ 2). Well-qualified graduates leave the academy, secure jobs where they enjoy well-equipped research and development facilities and where they are able to "compete with their alma mater in knowledge production" (Tjeldvoll, ¶ 2). The entrance of for-profit, e-learning competition into the higher educational sector and the resultant potential impacts of this new dynamic on the economic and pedagogical concerns of the academy now fall within the purview traditional universities' policy-making deliberations. Concurrently, the social forces of postmodernism, the interpretive turn, identity politics, globalization, and post-colonial critiques (Lincoln, 2001) are having an impact on the organizational culture of higher education. The emergent challenges of strategically responding to these disparate pressures create a need for a deep understanding of the interrelated, "complex, [and] ill-defined" issues (Kowch, 2003, p. 6), which will shape the structural, cultural, economic, and pedagogical environments of the future academy.

Criteria for Evaluating the Efficacy of e-Learning Initiatives

This examination of the ecological setting of the academy is focused on e-learning initiatives for alignment and attunement with larger social and economic forces, as well as the existing institutional cultural, economic, and pedagogical contexts. As in broader change initiatives, if the planning, design, and implementation of a strategic e-learning

initiative is to be deemed worthwhile, it must have sufficient utility; it must "meet some need" and it must be operationally, fiscally, and politically viable (Guba & Lincoln, 1985, p. 227). Further as with other transitions, the broad-scale adoption of e-learning must be, and must be seen to be, an efficacious adjustment to emergent circumstances, for which alternative responses would be insufficient (Ruttenbar, Spickler, & Lurie, 2000). Determining if a broad-scale e-learning strategy is feasible within a particular academic setting, depends, in part, upon gaining an understanding of the driving and restraining forces that influence leadership within the academy as a whole, as well as variant levels of support for adoption from within individual academic contexts.

A factor that may make broad-scale adoption of e-learning an efficacious adjustment to emergent circumstances, for which alternative responses would be insufficient, is significantly increased demand for the provision of online resources to support classroom-based learning, distance learning, and distributed learning models. The emergence of a global learning society has increased these demands.

External Economic Forces

The *knowledge* economy is a powerful force in contemporary society (Nesbit, 2004; Alcaly, 2003; Norton, 2000; O'Driscoll, 2003). As increasing numbers of countries move towards knowledge-based economies, the importance of human capital—sharable knowledge, leadership capacity, and creativity of a human involved in economic activity—will continue to grow. In the foreseeable future, workers who create and use knowledge to add new value to products and services will be "a prominent and perhaps the dominant group in the workforce" (Alcaly, 2003, p. 9). Given the economic and social promise associated with success in higher education, demand for access is likely to

continue to significantly increase over the next decades. Limitations on existing tertiary educational institutions' abilities to accommodate rising enrollments, increasing numbers of adult learners, as well as competing responsibilities in adult learners' lives, have all contributed to the demand for distance learning options.

While the new economy's reliance upon a well-educated workforce for survival and success suggests a strong role for the academy in the future, cultural and value differences may impede corporate-academic collaboration. Corporate demands for knowledge workers who continually renew their knowledge for the purpose of sustaining innovation—but do not necessarily seek formal credentials for that knowledge—and may not be attuned to traditional university culture and values. The norms of the traditional academy may not well serve the corporate agenda, and may not wish to do so.

Current structures and functions of the traditional academy may not reflect the "network enterprise" norm of the corporate world (Norton, 2000). Networked enterprises are described in terms of a triangulation of initiatives, each of which work toward the goal of achieving maximum flexibility as a strategy for dealing with complexity, ambiguity, and continual change. Implementing a networked system effectively involves an inter-related and complex set of changes to conventional business practices, which can only be accomplished "if managers and workers understand" that the changes do not constitute "a fixed way of doing things but, rather, a method, or philosophy of experimentation, of constantly testing existing procedures against proposed changes, of always searching for small ways to improve" (Alcaly, 2003, p. 148).

Coping with the ambiguities of work as an experimental arena where there are no fixed processes or procedures will require an adaptable, informed, and innovative

workforce, capable of high levels of effective interpersonal communication and collaboration. Members of this workforce need to continuously renew their knowledge; and therefore, adopt learning as a life-long process. The resultant pressures on existing post-secondary educational institutions to provide continuing personalized education for adult learners via flexible, affordable, distributed learning options may become an increasingly strong driving force for change within the institutions themselves.

E-learning as a disruptive technology? In the new economy, even the most knowledgably staffed and effectively networked enterprises, as well as, one might argue, traditional universities, need to be aware of the possibility of the emergence of a "disruptive technology" (Norton, 2000, p. 129). A disruptive technology is defined as any technology capable of "overturning the established order" (Norton, p. 129). The "irony" of disruptive technologies is that "in the face of a disruptive technology, good management can contribute to [organizational] failure" (p. 130). The reason for failure is that disruptive technologies *do not* serve the needs of existing organizational structures, *do not* support existing business incentives, *do not* provide avenues to "increase profit margins on existing products," and *do not* meet the needs of an organization's "most-valued existing customers" (p. 130). Disruptive technologies gain advantage via newcomers' creations of "bare-bones product[s]," initially distributed to "the low end of the market" (p. 130). The newcomers "then improve the package over time while still charging a lower price. At some point the over-served established market will start to turn to the minimalist newcomer, and all bets are off for the leaders" (Christensen, 1997, p. xvii).

A parallel in higher education is plausible. To date, e-learning competition from the private sector may only indirectly influence faculty. Faculty responses to this new competition tend to lack a sense of urgency "due to [faculty] belief in the quality and rigor of their own programs" (Olcott & Schmidt, 2000, p. 269). However, leaders of traditional universities may wish to consider the extent to which e-learning is driving a "transformational market" within higher education (Olcott & Schmidt, p. 269). The educational sector cannot hope to escape the influence of the new economy, including its disruptive technologies; therefore, universities need to consider how to adapt to this influence.

One way to approach adaptation is to study the complexities and convergences that mark the new economy to identify *crossover points*—points at which new economy forces will most likely and most immediately influence university activities. The convergence of research, higher education, and information technology (IT) in e-learning initiatives is an evident and immediate *crossover point*. Archer, Garrison, and Anderson (1999) argue that the emergence of e-learning as a potentially disruptive technology in higher education is already evident:

> Universities currently enjoy a dominant position in the postsecondary education "industry." However, this "industry" now seems to be entering a period of rapid technological change – the sort of period in which the leading firms in an industry may rather suddenly be eclipsed by new players. (p. 13)

The increase in the number and sources of electronic distance education "products" is an outgrowth of rapid technological change (Archer, Garrison, & Anderson,

1999, p. 14). Moreover, many new players, institutions that specialize in e-learning, such as the University of Phoenix and Athabasca University, have focused their attention on the least profitable "customers" in the educational sector (Archer, et al., p.18). "In the environment of public universities in Canada, it is easy to identify undergraduates as being among the university's 'least profitable customers'" because they do not contribute to the most "lucrative part of the 'market' addressed by traditional universities" (Archer, et al., p. 18).

Research is the currency of traditional universities, the predominant source of tenure and promotion for faculty. As undergraduate students rarely contribute to this currency, emphasis on undergraduate teaching may be less valued. Further, within this potentially less valued group, "a few 'customers' have been a particularly "unprofitable market segment" (Archer, Garrison, & Anderson, 1999, p. 18). This particularly unprofitable group is made up of individuals, "who for geographic, economic, or academic reasons, cannot access a conventional university program" (Archer, et al., p.18). The educational aspirations of these individuals have created an opportunity for the emergence of online delivery of distance education as a disruptive technology. As these individuals cannot access traditional universities, they have little choice but to accept often simpler and sometimes, lower-quality educational "products." As long as distance education almost exclusively served this unprofitable market segment within traditional universities, it was marginalized in continuing education and extension divisions and of little interest to the academy at large.

However, e-learning is blurring traditional boundaries, blending outreach and campus-based activities, introducing cost-recovery models, and potentially becoming a

disruptive technology, as well as a disruptive cultural influence—especially in institutions that have committed themselves to integrating entrepreneurial culture into the fabric of the university (Hanna, 2000). Integration of entrepreneurial culture into traditional college structures is often perceived as commercialization and critiqued as evidence of an institutional lack of purpose and mission "beyond a vague commitment to 'excellence'" (Bok, 2003), and as a threat to "the quality and relevance of teaching, learning, and research" (Daniel & Mohan, 2004). Entrepreneurial continuing education and extension units may also be perceived as threats to existing discipline-based, instructor-centered, and classroom-oriented programming and "to traditional, content-based organization and decision making" (Hanna, 2000, p. 99).

A driving force behind an increasing emphasis on the development of an entrepreneurial culture within the academy has been accelerating competition among universities (Bok, 2003; Daniel & Mohan, 2004; Hanna, 2000). Increased competition has sparked concerted efforts within universities to acquire greater resources "because almost anything that a university does to try to lift its reputation costs money" (Bok, 2003, p. 14). While traditional universities have been focused on securing funds for recruiting renowned professors and the most talented students in order to further their attempts to become first-rate research universities (Bok, 2003), some newcomers in the arena of higher education have focused their efforts on providing access to higher education via e-learning.

For-profit or corporate universities, such as the University of Phoenix, Jones International, Capella University, among many others, have entered the post-secondary e-learning *market*, and have with varying levels of success, established themselves as

significant players in both the undergraduate and graduate "sectors." For example, the University of Phoenix currently "enrolls over 70,000 students in degree programs" and has become the largest provider of online degrees in North America (DiPaolo, 2003, p. 6; See also Bates, 2000).

While the e-learning *market* remains highly volatile, the list of educational entrepreneurs has expanded both within and beyond the corporate model to include collaborations among traditional universities, corporations, publishers, associations, and both national and international governmental organizations, including the European Commission and the United Nations (DiPaolo, 2003, pp. 3, 11). Further, these initiatives are often very well funded. The European Commission adopted a "13.3 billion dollar plan" in April 2001 "to promote online university education" (DiPaolo, p. 3). Universitas 21, "an international network of universities," and Thompson Learning collectively invested 50 million dollars in their online learning alliance (DiPaolo, p. 4).

These newcomers often access traditional universities' more prominent faculty members, and pay these members very well, to refine and expand educational products and services. As a result, newcomers are becoming increasingly competitive in the graduate education market. For example, the University of Phoenix's most high profile and profitable offering has been its "masters of business administration program" (Hanna, 2000, p. 144). *Strayer Online* is a for-profit venture in higher education. *Strayer Online* has delivered graduate degree programs through twelve campuses (Hanna, p. 144), and allows learners to choose among online synchronous and asynchronous, as well as blended learning, delivery options (Strayer University, 2006).

Traditional universities have responded to the rise of educational competitors in a variety of ways. As well as entering into public-private collaborative ventures, they have also attempted with varying success to create for-profit spin-offs. “Duke Corporate Education, Babson Interactive, National University, and eCornell” are, to date, operational; “NYU Online,” “Fathom/Columbia,” “UMUC Online,” and “Virtual Temple” are notable failures (DiPaolo, 2003, p. 23). Given the level of risk, the apparently equal odds for success and failure of for-profit spin-offs, as well as alternative models for e-learning initiatives, strategic planning appears critical.

A strategic plan obviously needs to include a sound business plan, but a sound business plan may not be a sufficient guarantor of success. Understanding the potential for e-learning initiatives to create a significant disruption of existing “group goals, group standards, group values, and the way a group ‘sees’ its own situation and that of other groups” (Lewin, 1951, p. 198) within the social field of the academy may be an even more important consideration. Stated differently, “How do we move from a position where everyone has a different, fixed idea about the changing higher education landscape to a position in which the community as a whole can move forward with confidence” (Brown & Jackson, 2001, p. 13)?

External Social Forces

Five “powerful social forces,” warrant consideration in change management strategies because they currently exert influence on a “variety of social, economic, governmental and legislative activities around the world” (Lincoln, 2001, ¶ 1). These forces pervasively influence the social fields of policy creation because:

> Taken together, postmodernism, the interpretive turn, identity politics, globalization and the post-colonial critique—even though each might be sensed or enacted differentially at any given time—form a powerful force for social change. They will… force changes in our relationships with other countries, with other cultures, and indeed, with the multiple and pluralistic subcultures inside our own country. (Lincoln, ¶ 4)

Lincoln posited that understanding these forces, as well as the changes to existing social policies and structures they affect, has become a crucial aspect in evaluating how a proposed change "fits with those changes, contradicts the changes, resists changes, or is completely out of touch with them" because "if one proposed change exhibits great consonance with other, larger social forces, its chances of surviving, and possibly thriving, is enhanced" (Lincoln, 2001, ¶ 3). Given that the adoption of a large-scale e-learning initiative may have the potential to have a significant impact on existing university organizational cultures, structures, and functions, consideration of adopting such a policy warrants analysis of the academic social field to determine the relative strengths of consonant driving forces and contradictory restraining forces.

Postmodernism. Postmodernism influences the way complex problems, such as whether or not to embed an e-learning initiative into the core activity of the academy, are articulated, analyzed, and resolved. From a postmodernist perspective, "reflexivity, rather than reason, is the process that postmodern thinkers advocate for coming to a deeper sense of the kind of world we are personally constructing with our words" (Sackney & Mitchell, 2002, p. 890). A *deeper sense* of the issues involved in e-learning initiatives in traditional universities involves an analysis of potential impacts on existing academic

culture, as well as their alignment with and attunement to emergent social, cultural, economic, educational, and organizational trends.

A further implication of postmodern thought has been "that theory and practice [must be] inseparable, and 'useful theories [will be] those that have the potential to offer new alternatives to the present culture'" (Mitchell, Walker, & Sackney, 1996, p. 50). Given a need for an inclusive, stakeholder-sensitive approach, e-learning system policy options need to be explored in an action-oriented perspective. The result of this broadly based environmental scan of the sense that variant stakeholders make of potential e-learning policies must assume that the emergent effects of "uncertainty, instability, complexity, and indeterminacy" (Sackney & Mitchell, 2002, p. 900), may surface value pluralistic constructions that "are inextricably linked to … particular physical, psychological, social, and cultural contexts," which in turn, require a dynamic of "negotiation" (Guba & Lincoln, 1989, p. 8). The outcome of negotiation may be a consensus, a "shared construction" of how to respond to the situation (Guba & Lincoln, p. 9), or an explanation why a shared construction cannot be reached. A clear course of action may *not* emerge from this process; however, a deeper understanding of whether or not a strategic e-learning policy is operationally, fiscally, and politically viable may be reached.

"The interpretive turn." Lincoln's (2001) second social force, "the interpretive turn," is an acknowledgement "that facts are only 'facts' within some theoretical framework, and that much of what passes for science is, in fact, some assertion within a theoretical discourse system" (The interpretive turn, ¶ 1). Within theoretical discourse systems:

> Social constructivism posits that two kinds of realities exist side by side, and operate within the same domain: the first reality resides in tangible objects, sites, and events, and is peopled by individuals and groups with specific social interests. The second reality is constituted in the minds of … stakeholders, and is driven by the sense-making and meaning-imputation activities of the human minds. (The interpretive turn, ¶ 1)

Under the lens of deconstruction, a critique of theoretical language that questions both the predominance of scientific theory and the sole privilege of scientists to define independent knowledge, "the trademark of a research university—independent production of scientific knowledge is obviously challenged" (Tjeldvoll, 1998, ¶ 3). Given that "in the wake of postmodernism and the critique of positivism, the earlier division of knowledge into distinct disciplines is no longer generally accepted" (Tjeldvoll, ¶ 3), the discipline-based organizational structures of the academy may not be well-aligned to meet the knowledge needs of a global learning society. Interdisciplinary-collaborative research, teaching, and learning initiatives, which are enabled by e-learning solutions, may be better aligned to global knowledge construction because these initiatives include multiple perspectives, broader access to current theory, and therefore, wider-ranging critiques.

Identity politics. Sensitivity to "identity politics" (Lincoln, 2001, Identity politics, ¶ 2) may seem to be a topic distinct from the one at hand. However, issues of identity and ethnicity are deeply connected to issues involving information technologies because both are "social construct[s] that might evolve in one context and change in another" (Zurawski, 1996, ¶ 2). Therefore, it is important to "understand the relationship between

cultural identity and information technologies and how the dynamic of the information age affects the collective identities of groups and their modes of self-organization" (Zurawski, ¶ 3). Acknowledging this dynamic provides a further rationale for taking "into account the social, cultural, educational and political interests of various stakeholding groups" (Lincoln, Identity politics, ¶ 2), who will be affected by the result of the decisions of policy-making groups.

Globalization and the post-colonial critique. Globalization, the actualization of "trans-national corporations," "money," "currencies," and "whole economies" moving "at lightning speed over the Internet," as well as the accompanying effects of the post-colonial critique of the "'McDonaldization' of the non-Western world" (Lincoln, Globalization, 2001, ¶ 1; See also Barber, 2001) are both driving and restraining forces in the development of e-learning strategies. Access to international learners may be perceived as a desirable strategy for increasing enrollment revenues; therefore, e-learning initiatives can be aligned with globalization and re-colonization. However, it is not necessary to perceive e-learning in this fashion. While e-learning policy makers need to be cognizant of the potential effects of exporting "Western forms of thinking," which may "impinge" (Lincoln, Globalization, ¶ 2) upon learners' lives in international contexts, it is possible to include opportunities for critique of Western ways of thinking and respect for international contexts, and as a result, promote East-West, North-South dialogue. Such considerations can include an ethic of awareness, sensitivity to possible outcomes of influencing international students' perceptions of the "norms and codes … embedded in the traditions, laws, customs, arts, and literature" of their home societies (Zurawski, 1996, Ethnicity and communication technology, ¶ 3). Variant levels of faculty

expertise in cross-cultural issues and awareness of post-colonial critiques regarding "negative impacts on indigenous universities" (Hanna, 2000, p. 343) may be restraining forces in the success of e-learning.

Potentially Restraining Forces Within the Academy

Restraining forces within the academy may include place-based policies that have not been revised sufficiently to remove obstacles to effective distributed learning practice. For example, academic leaders may need to reconsider existing residency requirements (DiPaolo, 2003; Olcott & Schmidt, 2004), imbalanced research and teaching reward systems (Archer, Garrison, & Anderson, 1999; Boyer, 1990), problematic intellectual property policies (DiPaolo, 2003; Hilton & Neal, 2001; Tallman, 2000), and insufficient levels of application of research-based distributed learning strategies (Bates, 2000). Inadequate levels of learner-centredness in instruction and in support services, or alternatively stated, meaningfulness to learners (DiPaolo, 2003; Hanna, 2000; Olcott & Schmidt, 2004; Thomas, Carswell, Price, & Petre, 1998; Thompson, 2000; Vinicini, 2001) can be especially inhibiting in distributed learning environments. Misaligned organizational structures and functions can slow the rate of adoption of e-learning options by creating unnecessary disciplinary barriers in development projects (Tjeldvoll, 1998).

Significant concerns about financial risk may restrain efforts to develop and implement institutional e-learning systems. The notable failures (DiPaolo, 2003, p. 23) among those universities where scalable e-learning systems have been attempted are cause for caution. However, strategically drafting e-learning system policies, as crucial components of long-term planning initiatives, at a time when convergent driving forces

for flexible, accessible, distributed learning opportunities are rapidly increasing is necessary.

A Proposed e-Learning Policy Field

In order to determine if or to what extent restraining and driving forces may influence the adoption of e-learning within the academy, a force field policy model has been posited. Eight potentially restraining forces within the e-learning system policy field have been presented. Financial risk, pervasive fiscal challenges, existing residency requirements, imbalanced research and teaching reward systems, problematic intellectual property policies, inadequate levels of application of research-based distributed learning strategies, and potentially misaligned organizational structures and functions may each act as powerful restraining forces in the adoption of scalable and sustainable e-learning solutions.

Lincoln's (2001) five social forces may influence the direction of change within the academy, as the institution adapts to the changing social context of contemporary society. While the identity politics and the postmodern critique have the potential to become restraining forces, influences of postmodernism, the interpretive turn, and globalization may act as driving forces.

Comparably, the new economy, and its significant impact on the everyday lives and needs of academy graduates to constantly update their knowledge and skills, may initiate and sustain change that drives e-learning adoption (Alclay, 2003; Barone, 2003; Ghosh, 2004; Norton, 2000). Technological innovation (Alclay, 2003; Bates, 2000; Barone, 2003; Norton, 2000), disruptive technologies (Archer, Garrrison, & Anderson, 1999), enrollment and reputation competitions among traditional institutions of higher

education (Bok, 2003; Hanna, 2000), the entrance of for-profit, corporate competitors (Bates, 2000; Hanna, 2000), and heightened competition in both the academic and corporate research sectors (Bok, 2003; Tjeldvoll, 1998) may drive increased use of e-learning as conduits to competitiveness. In addition, the need to form inter-institutional research and teaching alliances and collaborations in order to achieve efficiencies (MacKay, 1996), and the need to address the international trend to establish service university models in response to pervasive fiscal challenges (Tjeldvoll, 1998) may drive the e-learning agenda.

e-Learning solutions can provide distributed learning opportunities to broaden life-long access to higher education (Bates, 2000; Hartman & Truman-Davis, 2001). As life-long learners need to balance commitments to learning, work, and family (Bates, 2000; Hanna, 2000; Palloff & Pratt, 1999), access to distributed learning options may be the most pragmatic solution to meeting their learning needs.

Emergent needs within the academy, including solutions to knowledge management and resource-sharing challenges (Daniel & Mohan, 2004; Hanley, 2001), the requirement for cross-functional, team-based work to construct cost-efficient, effective learning resources (Bates, 2000; Hanley, 2001; Hartman & Truman-Davis, 2001), and the trends toward inter-departmental and inter-divisional collaboration to extend learning opportunities across disciplinary boundaries (Hanna, 2000a; MacKay, 1996; Tjeldvoll, 1998) suggest that attention be paid to current organizational structures.

The need for technological standardization and stabilization to ensure quality, interoperability, and dependability of educational resources (Bates, 2000; Daniel & Mohan, 2004; Hartman & Truman-Davis, 2001), the necessity for process clarification to

avoid duplication of efforts (Bates, 2000; Hartman & Truman-Davis, 2001), as well as a response to increasing student demands for flexible, adaptable, and customizable instruction and programs to meet individual needs (Daniel & Mohan, 2004; DiPaolo, 2003; McCalla, 2004), each require strategic institutional e-learning policies. In *Figure 2* an e-learning policy field is theorized and addresses questions directed to external and internal driving and restraining forces for e-learning adoption within the academy.

Potential driving and restraining forces, which may significantly influence the broad-scale adoption of e-learning as a core function in traditional academies, have been discussed in this chapter. The ratio of driving to restraining forces in the *Figure 2* may appear to predict the adoption of e-learning as a core function across academies over time. However, the relative strengths of driving and restraining forces remain context-specific and time-sensitive. Furthermore, existing and emergent forces, which are not identified in this field analysis, may be particularly formidable in some contexts. Analysis of the context of an individual institution may benefit from the application or adaptation of the posited policy field, but the outcomes of such an analysis at any given time are not predictable.

Structural, Cultural, Economic, and Pedagogical Value Positions

Internal organizational structures, cultures, economies (reward systems), and pedagogical praxes may need to become attuned to changing academic times. At the heart of this need for adjustment of university policies, procedures, and customs is the groundswell of demands for lifelong, personalized, customized, and distributed learning opportunities (Daniel & Mohan, 2004; McCalla, 2004; Tjeldvoll, 1998). Strategic

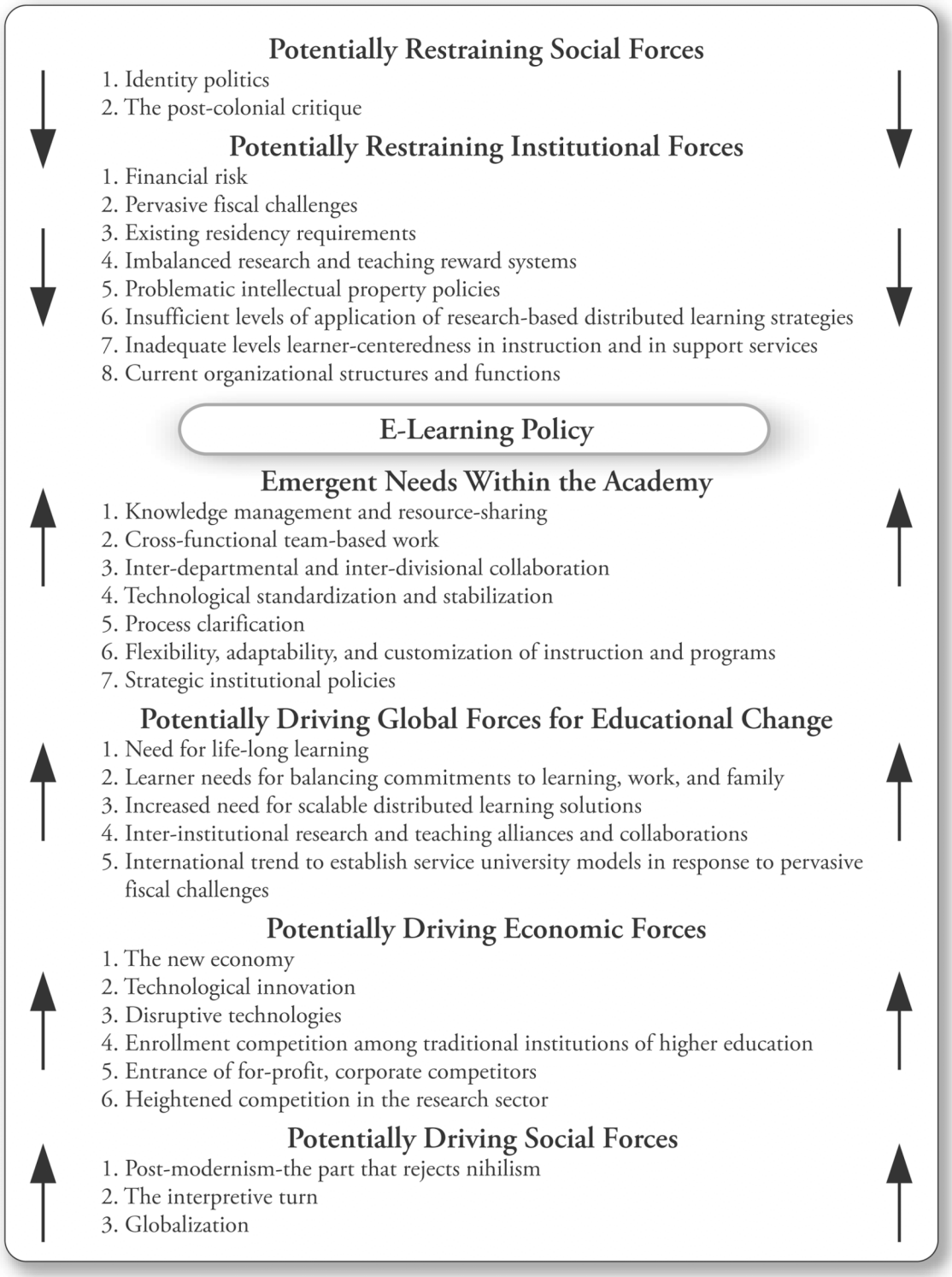


Figure 2. A proposed e-learning policy field for the academy

responses to these demands are required to ensure that CMLT solutions provide flexible access to high quality higher education and forestall the potential of models rapidly being developed by new for-profit higher education competitors (DiPaolo, 2003) from becoming disruptive technology and eclipsing the role of traditional universities in the higher education sector (Archer, Garrison, & Anderson, 1999; Christensen, 1997). The academy needs to embrace CMLT solutions and their associated service orientation to ensure its ongoing position as the best option for higher education.

In order to achieve this transformation, leaders in traditional research universities may need to increase their capacity to effectively manage complexity. Control and direction need to be abandoned in favor of influence. Contextualized solutions to complex problems need to be determined via inclusionary, polycultural approaches to change (Sackney & Mitchell, 2002; Suter, 2001). Faculty members need to be engaged and willing to take innovative risks (Bates, 2000; Brown & Jackson, 2001, Olcott & Schmidt, 2000). Cost-effective, scalable innovations need to be researched and developed (Daniel & Mohan, 2004). To make this transformation possible, individual institutions need to more thoroughly understand their current situations and collegially create effective visions for the future—a future where academy-based distributed learning networks will transmit CMLT opportunities around the world, thus providing flexible access for a wide range of learners to fully participate in the global learning society.

Dealing with the complexity of issues in this range of value positions "does not mean controlling or eliminating them. It means "tapping the power of complexity by accepting it, understanding its principles, and working with it" as academic institutions work with faculty to transform teaching and learning (Suter, 2001, p. 25).

Suter (2001) applied complexity theory in her development of five principles for transforming the academy into a postmodern, technologically advanced organization. She argued, "When the speed of change (in demographics, demand, workforce, technology, economics) leads us to the edge of chaos, the command-and-control model" of organizational structures and functions "is not only counterproductive, it is simply not possible" (Suter, p. 25). Suter's first principle advised academic leaders to "give up control and aim for influence" through systematic sharing of "information," "authority, responsibility, and the power to oppose" (p. 26). She argued that accelerating change requires institution-wide involvement and distributed leadership.

Secondly, adopting a stance of studying the academy as if it were an artwork, has been posited as an avenue to the creation of an "institutional vision" for a future where shared "goals worth working toward" can be achieved through "tracking important patterns" (Suter, 2001, pp. 28-29). Using an analogy to nature, Suter prescribed "a reduce and reuse" approach to creating streamlined, useful structures that fulfill multiple purposes, as well an over-arching common structure for institutional coherence. Paradoxically, she suggested investing in "polyculture and prototyping," experimenting with diverse approaches, and accepting that "failure is necessary to create the conditions for successful change" (Suter, p. 31).

Finally, Suter promoted tapping "the power of limits," through setting and communicating clear "boundary conditions" (p. 32). Boundary conditions were defined as limits within which the organization must manage its resources. An example of "the power of limits" was the extended use of research funding through application of findings to teaching and learning settings. Using Suter's (2001) managing complexity framework,

an examination of five aspects of each of structural, cultural, economic, and pedagogical value positions follows.

Organizational Structure

Five aspects of organizational structure, which have an impact on the successful adoption of CMLTs, include: (1) tensions between hierarchical and decentralized organizational forms; (2) bureaucratic and autonomous functions; (3) individual and distributed leadership models; (4) the relative comfort of gradual change and need for more rapid change; and (5) pressures for sustaining independent faculty roles and pressures to include emergent professions in collaborative, interdependent activities. Strategically mediating these tensions contributes to the "health" of the academy:

> 'Healthy' institutions are 'fit for purpose'; in other words, they are organized to ensure their goals and purposes are achieved in the most effective and efficient manner. The current structure and organization of most universities and colleges is largely historical and … unsuited to new forms of technological delivery. (Bates, 2000, p. 36)

Despite this criticism, Bates (2000) acknowledged an important way in which traditional universities are well prepared to become highly functional, postmodern organizations. He noted a form and function paradox, which serves two basic needs of a postmodern organization: the need for a clear vision of organizational goals and purposes, and the need for flexibility and adaptability to effectively and efficiency meet those goals and purposes. "Despite its hierarchical organizational structure, a [traditional research] university is, in practice, an extremely decentralized organization" (p. 41). The existing hierarchical form provides opportunities for "strong leadership, characterized by

clear but broad vision and objectives," and an "integrating, coordinating and facilitating role" for senior management (Bates, p. 40). The functionally distributed decision-making ability allows a "large and creative 'core' of staff—faculty—who are able and willing to operate relatively autonomously, are concerned with the creation and transmission of knowledge, and have the power to develop and implement new ways of doing things" (p. 41), thus allowing the organization to be flexible and adaptable. This paradox of form and function has the potential to balance tension between centralized and decentralized control. It allows leaders to, at once, "give up control while ensuring that there are commonly shared principles for decision making aligned with the institution's goals" (Suter, 2001, p. 27). In theory, strategic planning and faculty autonomy can co-exist within the distributed leadership environment of the academy.

However, faculty autonomy is a factor that affects the pace of organizational change. Few organizations allow the scope of latitude afforded to university and college faculty (Cahn, 1986). "The tradition-bound nature of the academy has accommodated this latitude, and the slow pace of change in almost every aspect of campus life has made it a tolerable part of the academic landscape" (Hagner & Schneebeck, 2001, p. 2). Conversely, rapid technological development and change, especially rapidly accelerating "dependence on information technology," "networking" (Bates, 2000, p. 40), and "prototyping" (Suter, 2001, p. 31) are hallmarks of postmodern organizations. The mismatch of the respective paces of traditional academic culture and postmodern organizational culture is a potentially powerful source of resistance to change (Hagner & Schneebeck, 2001; Hanna, 2000). If the academy is going to become flexible, adaptable organization, capable of providing learners with the necessary experiences "to develop

knowledge and skills appropriate for living and working in a rapidly changing, technology-based society" (Hanna, p. 46), the challenge of accelerating the pace of change within the academy must be met. Engaging faculty in the process of change through clear and open communication and decision-making channels may provide leaders with sufficient influence to do so (Suter, 2001).

A further structural concern, one that has an impact on faculty autonomy, has been a shift from independence to interdependence in scholarly work. In particular, emergent professions are beginning to be involved in the scholarly work of teaching. Traditionally, "university and college staffs have been highly skilled and … well-trained for *research*" (Bates, 2000, p. 41). However, "*teaching* has not been not professionalized in the sense of being based on skills resulting from research into and analysis of teaching and learning processes" (Bates, p. 41). Rather, teaching has most often been an independent, role model-based *art* or *craft*, which in comparison to research has "not [been] well rewarded" (Boyer, 1990, p. xii). However, in the development and implementation of CMLT learning opportunities, the professionalization of teaching through study of such areas of knowledge as, "psychology of learning, organizational management research, communications theories, [and] human-machine interaction" (Bates, p. 41) is critical.

Yet, acquiring and maintaining current, in-depth understanding of these disparate fields, in addition to a specialty area of knowledge, is not always possible. Therefore, many, if not most, faculty members need to work collaboratively with teams of specialists occupying emergent roles (Bates, 2000; Hanley, 2001; Hanna, 2000; Hutchins, 2000; Luker, 2000). Teaching with technology requires a shift from perceiving teaching

as fulfilling a traditional, independent role to "one where teaching and learning are the products of an integrated group of individuals" (Hanley, 2001, p. 59). Emerging roles within the realm of academic teaching and scholarship include: instructional designers, educational technologists, Web programmers, multi-media experts, computer scientists, and system engineers. In order to support a team-based approach to instructional development, academic leaders need to promote a culture of collaboration and change tenure and promotion standards that sufficiently reward faculty for time spent on collaborative instructional development activities.

In Figure 3 five continua of organizational structure within the academy are illustrated: hierarchical to decentralized organizational forms, bureaucratic to autonomous functions, individual to distributed leadership models, gradual to rapid responses to change, independent to interdependent roles. In addition, in *Figure 3* current and required conditions for successful adoption of CMLTs have been hypothesized through the use of a stereo analogy. The premise of this analogy is that just as tone, balance, bass, and treble need to be adjusted to suit an audio recording, organizational structures need to be "in tune" with e-learning initiatives.

Organizational Culture

Shafritz and Ott (2001) defined organizational culture as a collage of ephemeral phenomena, including "values, beliefs, assumptions, perceptions, behavioral norms, artifacts, and patterns of behavior," each of which contribute to "meaning, direction, and mobilization" (p. 361). Schein (1993) argued that a useful way to perceive organizational culture is "as the accumulated shared learning of a given group, covering behavioral,

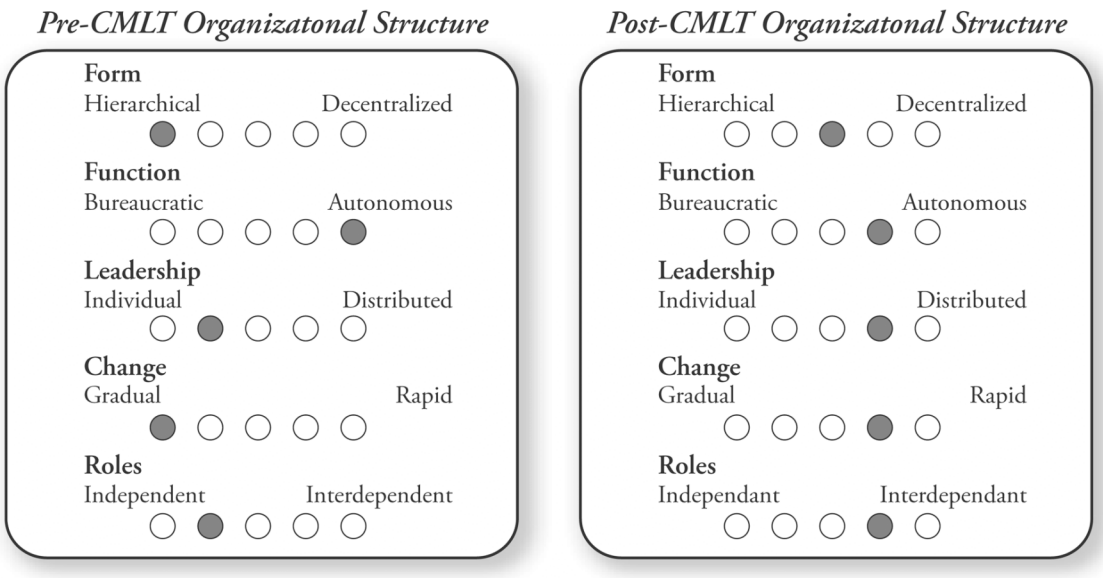


Figure 3. Organizational structures "in tune" with CMLT initiatives.

emotional, and cognitive elements or the group members' total psychological functioning" (p. 372). An organizational culture requires a "common language" and "a common system of communication" as the basis for "group learning"—the ability to acquire and dispel "shared basic assumptions" (Schein, p. 373).

When elements of an organizational culture "have become maladapted" to the external environment, "it is ultimately the function of leadership to recognize and do something about the situation" (Schein, 1993, p. 370). Trice and Beyer (1993) argued that *doing something about the situation,* changing an organizational culture, "is a relatively drawn out and slow process," which "usually takes several years to accomplish" (p. 415). They recommended initiating change at "propitious moments, when some obvious problem, opportunity, or change in circumstances makes change desirable" (Trice & Beyer, p. 417). The accumulative problems of decreasing public funding (Archer, Garrison, & Anderson, 1999; Bates, 2000; Hanna, 2000; Mackay, 1996; Nesbit, 2004),

opportunities to extend the academy to better serve the needs of a global learning society (Alclay, 2003; Archer & Wright, 1999; Maduro, 1998; McLuhan, 1964; Norton, 2000; O'Driscoll, 2003), and changes in circumstances, such as the entrance of for-profit competition (Bates, 2000; Hanna, 2000; Maduro, 1998) as well as the impacts of advanced information and learning technology (Archer, Garrison, & Anderson, 1999; Bates, 2000; Hanna, 2000; Nesbit, 2004) currently facing higher education, suggest that a *propitious moment* for cultural change is at hand:

> The most important and immediate task for universities facing an uncertain future is to build a culture that is friendly to and supportive of innovation and change at all levels of the organization. (Hanna, 2000, p. 348)

Again employing Suter's (2001) managing complexity approach, an examination of five elements of academic organizational culture that affect successful adoption of CMLTs follows. Beliefs about institutional operations have been examined along an independence/interdependence continuum. Values were traced from the tradition of emphasis on open discourse to inclusion of teaching marketable skills. Assumptions about the appropriate role of continuing education units within the academy scanned a range from public service to entrepreneurial venture. Perceptions of technology—from skepticism to enthusiasm—have been explored. Artifacts, from lecture notes, assignments, and exams to computer-mediated learning opportunities, were described in terms of the cultural changes associated with their use. Each of these elements was examined for alignment with the external forces driving and restraining change.

"The curtailment of public funding has become a year-to-year fact of planning life on the campuses" (MacKay, 1996, p. 10). As public funding is withdrawn "and as the ability of the universities, for reasons of equity and practicality, to replace these funds with other sources of revenue, such as tuition, becomes more restricted or disappears, the universities again face the fundamental question of how to rebalance themselves" (MacKay, p. 10). Increasingly, public pressure has mounted "to ensure that, where possible, the universities act in a cooperative and complementary fashion as they conduct their institutional missions" (MacKay, p. 10). As a result, "memoranda of understanding" between/among universities have been developed. At a basic level, these memoranda outline credit transfer policies and joint course development and delivery initiatives among universities. More recent types of memoranda, made possible by CMLTs, include franchise arrangements, which allow for use, revision, and reuse of electronic learning resources. This cooperative "reduce and reuse" (Suter, 2001, p. 28) approach to creating and managing resources has been a well-suited response to an environment of fiscal restraint.

Fiscal pressure has also fostered a need "to forge many linkages and partnerships with external associations" (Hanna, 2000, p. 339). Traditional research universities have been under significant pressure to abandon the posture of "quiet enclaves for the pursuit of truth far removed from the busy world of commerce and industry" and to assume close linkages "with national economic and scientific objectives" (Nesbit, 2004, p. 104). A pervasive debate within the academy involves increasing tensions between the academic value attached to "the traditional academic mandate of [fostering] a 'lively exchange of ideas'" through open discourse and the economic value of "the teaching of [marketable]

skills that can lead to required and satisfying careers" (Maduro, 1998, p. 42). Arguments against shifting the mandate further toward marketable skills follow: such a change would amount to "prostitution of education," and the academy would end up "being in the pockets of industry" (Maduro, p. 42). Given the "rapid growth in opportunities to profit from the production of knowledge," the risks of "conflicts of interest" have merited recognition. (Nesbit, p. 106). However, counter-arguments, such as "the 'job-readiness' gap is growing," and "skill deficits" are contributing to Canadian "non-competitiveness," (Maduro, p. 40) remain equally worthy of note. While the clash between "commercial and academic values" (Nesbit, p. 106) still requires significant deliberation, resolution may be found. Acknowledging the "polyculture" of the academy (Suter, 2001)—in particular, the role that Continuing Education (CE) units can play in skills training (Hanna, 2000; Maduro, 1998)—may provide an acceptable balance, attuned to both academic values and knowledge economy pressures.

The appropriate role of CE units has been another source of debate. Many North American CE units' mandates originally referenced "'the Wisconsin Idea': [that] the purpose of a university was not to educate a small, elite class, but rather to serve the educational needs of the community" (Archer & Wright, 1999, p. 61). Subsequently, CE units have commonly been tasked with dual responsibilities of providing high quality educational services as a public service function and increasing accessibility to programming to non-traditional learners. Conversely, "especially in research universities, many faculty members question whether or not providing lifelong learning, especially for those in the workforce, is an appropriate mandate" (Bates, 2000, p. 15). As a result, "departments of continuing education (CE) usually have both fewer resources and a

lower status than other university units" (Nesbit, 2004, p. 105). Long-term erosion of institutional support for public service programming through declining financial support from university administrations (Bates, 2000; Maduro, 1998) has created significant fiscal challenges for CE units. Increasingly, CE units are expected to operate on a cost-recovery basis (Nesbit, 2004). However, undertaking entrepreneurial ventures tends to garner criticism from students and faculty, resulting in further erosion of academic status across the academy (Maduro, 1998; Nesbit, 2004). This stalemate has contributed to North American universities losing an estimated "$70 billion dollars a year" to "corporate universities" and "training centers," where in-house programs address CE gaps (Maduro, pp. 43-44).

Given the significance of the need for lifelong learning, driven by the knowledge and skill demands of the economy combined with the public perception that publicly funded universities have a major obligation to share new knowledge via new information technologies and support for lifelong learning, reconsideration of institutional support for CE units, and their use of CMLTs has been warranted (Hanna, 2000). An institutional vision for a future where public learning needs are addressed through a reduction of the "rigidity of boundaries between [universities] and their external publics" through "interaction made possible by increasingly powerful technologies" (Hanna, p. 343) has the potential to revitalize the relationship between the academy and society.

If computer-mediated knowledge sharing is to become a basic tenet of the future academy, the challenge of developing technically competent faculties must be addressed by university leaders. Rogers' (1995) theory of *diffusion of innovations* "has quite deservedly been recognized as the baseline work" (Hagner & Schneebeck, 2001, p. 1) on

perceptions of technological innovations. Findings based upon "intensive interviews with 240 faculty at the University of Hartford" strongly suggest that faculty tend to "demonstrate predominant characteristics" of Rodgers' four technological adoption groupings (Hagner & Schneebeck, p. 2).

The "first wave" or early adopters have been identified as "professors who represent the vanguard of innovation in teaching and learning" with technology (Hagner & Schneebeck, 2001, p. 3). However, "their work tends to be idiosyncratic" and has not been scalable for broader use (Hagner & Schneebeck, p. 3). Engaging early adopters in scalable solutions requires clearly articulated processes and procedures, which are evidently more effective and efficient than individual efforts.

The "second wave" or "risk adversives" have been identified as professors who are committed to quality teaching and learning opportunities, and they are attracted to the potential of "new technologies" for improving "what they do"; however, they often lack "technological expertise," and require "significant levels of instructional support" (Hagner & Schneebeck, 2001, pp. 2-3). Risk adversives are often afraid that "their current success in teaching will not translate into the new teaching environments" (Hagner & Schneebeck, p. 2). Some "are hesitant to become engaged in the process of self-examination" (p. 2). Technological and peer support are critical for this group (p. 3).

The "third wave" or "reward seekers" have tended to focus on use of technology "to advance their professional careers"; therefore, their motivation "is closely tied to the university's reward structure (Hagner & Schneebeck, 2001, p. 4). "When they view adoption of new teaching and learning techniques as having a positive impact on tenure,

promotion, and salary decisions, they will be more willing to transform" (Hagner & Schneebeck, p. 4).

The "fourth group" or "reluctants" have been identified as "those who are computer illiterate or firmly believe that traditional models of learning are superior" (Hagner & Schneebeck, 2001, p. 4). In some academic institutions, "there is a pervasive belief that faculty jobs are going to be replaced by the adoption of technology" (Olcott & Schmidt, 2000, p. 262). Fearful and "philosophically resistant faculty" increasingly risk being perceived as "anachronistic" and the professional consequences of that perception, including "an adverse impact on the evaluation of their teaching" (Hagner & Schneebeck, 2001, p. 5). One effective leadership method with this group is to communicate these risks through "faculty bodies, such as faculty senates" (Hagner & Schneebeck, p. 6).

Variant perceptions of technology—from the skepticism of reluctants to the enthusiasm of early adopters—warrant consideration in the design of engagement strategies. To circumvent cultural resistance to technological innovation, institutions need to determine their [particular] faculty mix and strategically plan appropriate support mechanisms and communication channels for each adoption group.

Organizational culture is often expressed through the use of artifacts for cultural activities. Whereas lecture notes, assignments, books, and exams are predominant artifacts in traditional educational settings, CMLT artifacts include electronic learning resources and environments, and electronically mediated personal and professional experiences. The use of traditional educational artifacts emphasized concerted individual, isolated effort directed toward "abstract and relatively unconnected assessment processes such as … content examinations" (Hanna, 2000, p. 345). CMLT artifacts increasingly

focus on "the ability to work in teams, to develop creative approaches to problem solving, and to learn continuously" (Hanna, p. 344). Networked universities are becoming "more and more concerned with ensuring that students know how to learn and to apply what they learn to real situations" (p. 344). This activity-centred approach to demonstrating learning represents a cultural shift from valuing abstract knowledge to valuing applied knowledge and skills—the same skills that are "necessary to live and work in a rapidly changing economy" (p. 64).

In *Figure 4* two hypotheses are illustrated: one suggests a current state of academic culture and one recommends cultural attunement for successful adoption of CMLTs.

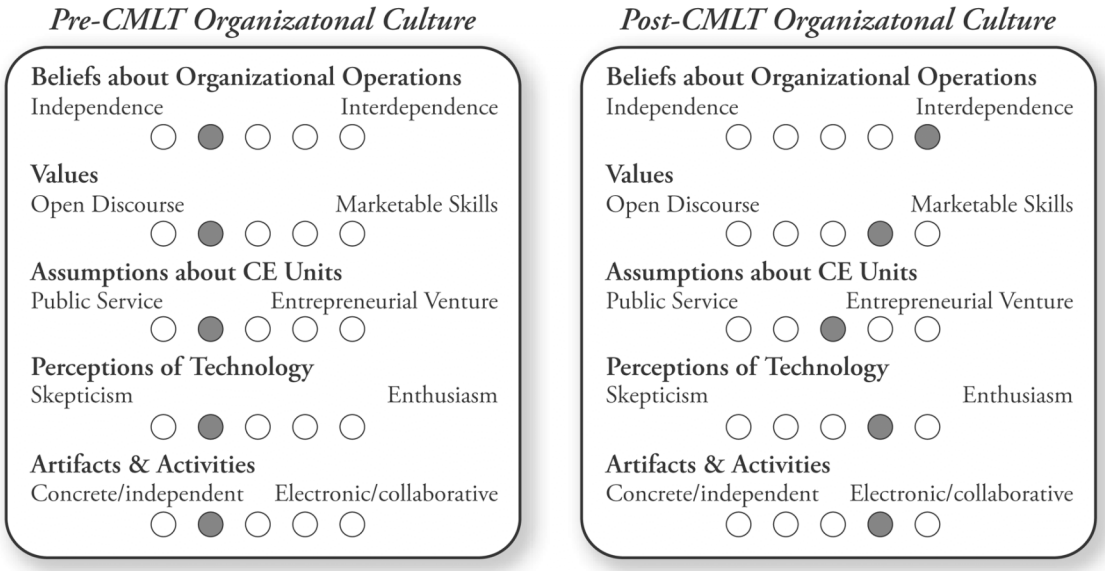


Figure 4. Organizational cultures "in tune" with CMLT initiatives.

Organizational Economies (Institutional Reward Systems)

Five aspects of organizational economies (institutional reward systems), which have an impact on the successful adoption of CMLTs include: tensions created by an emphasis on rewarding research activities more substantially than teaching activities,

restrictions on involvement of junior faculty in CMLT development through out-dated tenure and promotion criteria, emergent tensions between institutional rewards for commercialization of research discoveries and innovations and commercialization of CMLT development activities, emergent issues about CMLT intellectual property rights, and valuing work with graduate and traditional (full-time, on-campus) learners more than undergraduate and non-traditional (part-time, distance) learners.

Extending Suter's (2001) approach to managing complexity, an analysis of these five elements of institutional reward systems that affect successful adoption of CMLTs follows:

> Today, … there is a recognition that the faculty reward system does not match the full range of academic functions and that professors are often caught between competing obligations…. According to the dominant view, to be a scholar is to be a researcher—and publication is the primary yardstick by which scholarly activity is measured…. Given these tensions, what is the balance to be struck between research and teaching? (Boyer, 1990)

More than a decade after Boyer posed his question, the advent of CMLT development as a teaching activity for faculty adds salience to it. CMLT design, development, and delivery involve significant time investments from faculty (Bates, 2000; Hanley, 2001; Olcott & Schmidt, 2000). Conversely, the same time investment could be made in research activities. If the academy is serious about technological innovation in teaching praxis, but does not adjust this mismatch of rewards, it will be

difficult to engage faculty in CMLT development initiatives (Archer, Garrison, & Anderson, 1999; Hanley, 2001; Olcott & Schmidt, 2000).

Junior faculty members—the group that initially may seem most likely to adopt innovations—have been, in fact, systematically discouraged by existing reward systems (Hartman & Truman-Davis, 2001):

> Interestingly, senior tenured faculty can venture out and be innovative, while junior non-tenured faculty must adhere to traditional norms. Translated, this means strict adherence to promotion and tenure criteria. In sum, for many junior faculty members there are not only few incentives but, in fact, underlying disincentives operating in this subculture. (Olcott & Schmidt, 2000, p.264)

If technological innovation is to take hold in the academy, the criteria for tenure and promotion must become more inclusive "in determining legitimate [scholarly] activities" (Olcott & Schmidt, 2000, p. 265), and this change needs to be perceived as an immediate, rather than a future, concern:

> The currency of the Knowledge Age is information. More precisely, it is the creation, analysis, preservation, and distribution of information in efficient, easily accessible venues that give users the immediate capacity to apply information and knowledge. (Olcott & Schmidt, 2000, p. 259)

In the New Economy, the academic tradition of autonomous pursuit of knowledge, for its own sake, has been coming under increasingly powerful political-economic pressures. Fiscal challenges, combined with expanded opportunities to commercialize discoveries and innovations, have been driving academic leaders to

reward faculty for commercialization of research (Boyer, 1990; Nesbit, 2004). To date, few examples of commercialization of CMLTs can be found, but that may change. Increasingly, faculty who are skilled and experienced in CMLT development are being "courted by private-sector companies, publishing firms, and government to develop technology-based content and instructional packages" (Olcott & Schmidt, p. 266). A logical next step would be to reward faculty for commercialization of teaching activities in comparable terms to those that currently exist for commercialization of research activities.

One element of commercialization of electronic learning resources that deserves particular attention is the question of who owns the intellectual property (IP) rights to CMLT products that have been funded academic institutions, and developed by faculty members in collaboration with instructional designers, multi-media and information technology specialists. This question is complex, and to date, unanswered. Given that "cases have held … that a professor who creates his or her own lectures (assuming they meet the test of originality and fixation, i.e., recorded in a fixed format, such as print) owns the copyright in his or her own works" (Tallman, 2000, p. 194), it seems arguable that similar criteria would be applied to CMLT artifacts. However, given the "vast resources the university invests in the creation" of CMLTs, "it is understandable that a university will claim … ownership" (Tallman, p. 194).

A further complicating factor is the status of the collaborators in the IP picture. Whereas, multi-media and information technology specialists routinely belong to professional associations whose contractual relationship with the university has included relinquishing IP ownership of "work-made-for-hire" (Tallman, 2000, p. 194),

instructional designers have sometimes held faculty positions. The latter consideration brings to the fore questions concerning the respective values of content and design in CMLTs. As muddy as the IP waters appear to be, “there is a middle ground: copyright can be owned jointly” (Tallman, p. 195). In sum, legal guidelines for sharing profits derived from the commercial exploitation of CMLT artifacts may soon become a matter of significant contention between academic faculties and leaders. The manner in which this matter is managed could become a critical element in either driving or inhibiting faculty engagement in technological innovation.

A fifth consideration of existing reward systems were the variant returns on investment faculty receive for teaching and advising different types of students. The least profitable learners in the educational sector are individuals, “who for geographic, economic, or academic reasons, cannot access a conventional university program” (Archer, Garrison, & Anderson, 1999, p. 18). Typically, these non-traditional learners have registered in unclassified or non-degree programs offered via distance learning options. Distance education within traditional universities has typically been marginalized in continuing education and extension divisions, and of little interest to the academy at large (because neither status nor rewards were offered for this work); therefore, the tasks of teaching and advising non-traditional, part-time learners has often been contracted to sessional lecturers.

“In the environment of public universities in Canada, it is easy to identify [traditional, on-campus] undergraduates as being … the university's [second] ‘least profitable customers’” because they do not contribute to the most “lucrative part of the ‘market’ addressed by research universities” (Archer, Garrison, and Anderson, 1999, p.

18). As research is the currency of traditional universities—the predominant source of tenure and promotion for faculty—and as undergraduate students rarely contribute to this currency, emphasis on undergraduate teaching may be less valued.

Recently, for-profit corporate universities have entered the post-secondary educational *market*, and have with variant levels of success, established themselves as players in the graduate "sector" (Bates, 2000; DiPaolo, 2003). In response to this emerging competition, traditional universities, to varying degrees, have implemented changes to graduate studies admission and residency requirements, and as a result, have created a third class of academic clients: professional or executive graduate students. The Universities of Toronto, Saint Mary's, Western Ontario, McGill, Brock, and Concordia, for example, have launched Executive Masters of Business Administration programs, all of which involve flexible access, such as weekend and evening classes, and many of which include part-time and e-learning options. While learners in programs such as these are involved in research, as part-time and/or remote program participants they are unlikely to contribute significantly to campus-based research programs. However, with tuition fees as high as $50,000 in total (McGill, 2006) and $16,500 per year (Brock, 2006) for e-learning options, tuition revenues can significantly contribute to funding on-campus research.

The fourth, and arguably still most-valued class of learners in traditional research universities, remains full-time, on-campus graduate students. These learners make significant contributions to the academy through research and teaching assistant positions, thus freeing faculty to focus their time and energy on research and publication (Archer, Garrison, and Anderson, 1999, Olcott & Schmidt, 2000). As a result, the

activities of full-time, on-campus graduate students currently are most closely aligned to existing faculty reward systems, thus provide the most return on investment for faculty time.

However, the influence of the New Economy, combined with rapidly increasing educational costs (Bates, 2000), and the available option of e-learning may make full-time, on-campus graduate study less attractive. Further, "the public, the legislature, and consumers care about quality," but they also increasingly focus attention on "cost-effectiveness" (Olcott & Schmidt, p. 269). Scalable e-learning systems are gradually becoming more cost-effective than campus-based programs (Bates, 2000), and if one takes a broader view, productivity and wage losses due to long-term study-related career interruptions are arguably also measures of cost-effectiveness. The "new generation of students who are more demanding, selective, and vocal about their educational" and financial needs may less often choose the full-time, on-campus route through graduate studies (Olcott & Schmidt, 2000, p. 268). Therefore, traditional research universities may be well advised to consider reevaluating existing reward systems to provide incentives for increased faculty involvement with a broader variety of learners, including involvement with learners whose life-long learning needs include flexible and accessible opportunities to meet re-certification requirements.

In *Figure 5,* two hypotheses are illustrated: one suggests the current "economic" state of the academy and one recommends a reward-system attunement for successful adoption of CMLTs.

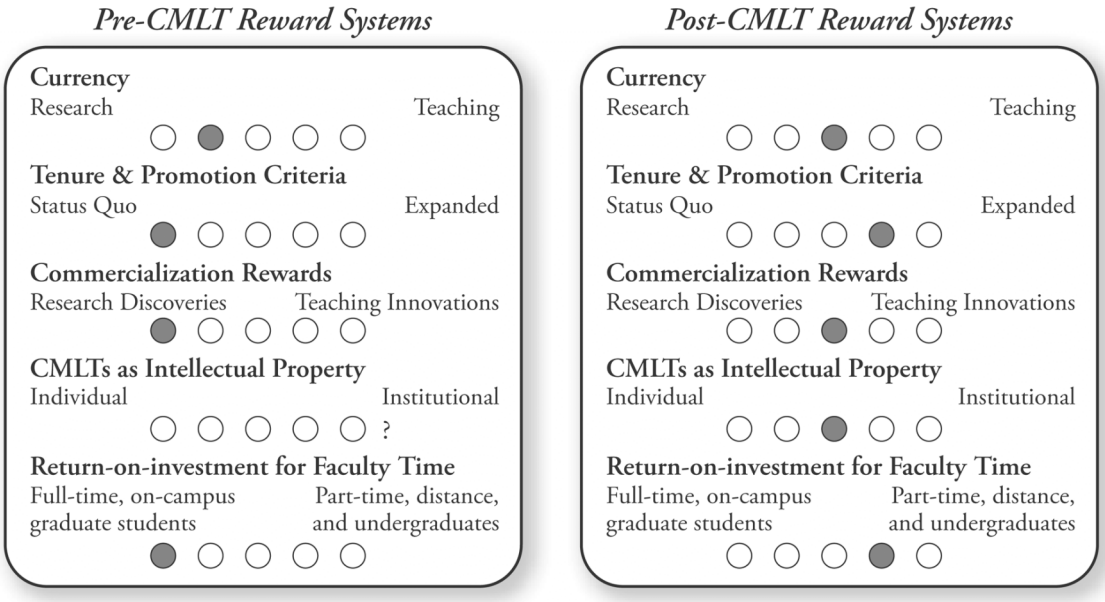


Figure 5. Organizational economy/reward systems "in tune" with CMLT initiatives.

Pedagogical Praxis

With the advent of CMLT learning opportunities, "faculty must begin to *design* instruction and not just *deliver* instruction" (Olcott & Schmidt, 2000, p. 274). The professionalization of teaching, as a critical component of successful adoption of CMLTs, requires that faculty reevaluate their pedagogical practices. "Habit, tradition, and culture have so far kept [many] faculty from addressing pedagogical practice and technological innovation" (Olcott & Schmidt, p. 274). An increasingly common institutional approach to address pedagogical practices in the development of CMLTs is to involve instructional designers.

Instructional design—a combined art and science of teaching—is based upon principles of learning psychology, "cognitive science research and instructional models" (Olcott & Schmidt, 2000, p. 274). Research conducted through EDUCAUSE, a nonprofit

organization, whose membership includes “more than 1800 campuses, organizations, and corporations” (Barone & Hagner, 2001, p. viii), strongly suggests the involvement of instructional designers, or at a minimum, provision of instructional design resources for CMLT development initiatives “serves to increase quality and reduce risk” (Hartman & Truman-Davis, 2001, p. 51). Increasing quality and reducing risk remain two of the most important concerns in e-learning initiatives. Thus, a series of pedagogical considerations have been warranted.

Five pedagogical considerations, which have an impact on the successful adoption of CMLT learning, include: the changing nature of student enrollment patterns; customization and personalization of learning environments and experiences; transitioning from content-focused to learner-centred and service-oriented instruction; transforming classroom-based and distance education models into distributed learning opportunities; and designing CMLTs for reuse. Thoughtful, strategic responses to these five pedagogical issues can contribute to successfully managing the complexities of e-learning initiatives.

One of the major challenges that traditional research universities face in the digital era—perhaps the most salient one—is ascertaining who their prospective learners are and who future learners will be. Whereas, geographical area, institutional reputation and mandate, as well as fee structures, may have been the criteria that defined institutional “clientele” in the past, increasingly job market demands, e-learning options, and lifelong learning needs are influencing the “student mix and competitive position” of universities (Hanna, 2000, p. 337). Diversity in the range of job-related skills in demand

and diversity in the range of learners *shopping* for courses and programs have been contributing to demand for customized or personalized learning experiences:

> Personalizing learning will require the development of new administrative and pedagogical processes, and learning technologies will play an important role in being able to accomplish this personalization effectively. (Hanna, p. 337)

Personalizing learning also requires knowing who the learners will be and the range of individual needs that must be met. Failure to address the personalization issue has already caused a significant number of institutions to experience significant difficulty in implementing e-learning initiatives.

Rapidly increasing enrolments in higher education e-learning programs may not result in equally high successful completion rates. Carr (2000, ¶ 13) reported a range of 20 to 50 per cent attrition rates in distance education programs in American colleges. While these rates vary significantly among institutions, administrators have generally concurred that "course-completion rates are often 10 to 20 percentage points higher in traditional courses than in distance offerings" (Carr, ¶ 13). A metastudy of a broad range of correspondence-based distance education results, undertaken by the World Bank, reported "dropout rates ranging from 19 to 90 per cent and an overall rate of 40 per cent" (Potashnik & Capper, 1998, p. 43). Potashnik and Capper suggested that "while similar studies have yet to be conducted for technology-based distance learning, both intuition and the limited research already done suggest that the interactivity and novelty provided by most technology-based approaches may contribute to higher completion rates" (p. 43).

However, recent studies of attrition rates in online learning programs provide little supportive evidence that CMLT-based approaches can ensure higher completion rates. Jameson (2002) argued, “It is common in Web-based instruction to have high attrition rates” (p. 2). Neil (2002) reported “enrollment and attrition rates are both statistically greater in the online format” (p. 66). Lorenzetti (2002) concurred that while it is relatively easy to attract learners to online distance education courses, dropout rates can “range as high as 50 per cent” (p. 1). MacGregor (2001) argued that not all learners are willing to try online approaches to distance learning, and “those who do sign up drop out in higher numbers than in a traditional face-to-face course” (p. 143). “Retention has been indicated as one of the greatest weaknesses in online instruction” (O'Brien, 2002, ¶ 1). Given these preliminary findings, the success of electronically delivered distance education products and services may not be as secure as projected demand statistics predict. Whether or not e-learning will be successful is a question that the learners, not the technologists, will ultimately answer. In short, the predominant question about e-learning has been, “If we build it, will they come?” Currently, the question is, “How do we design it to ensure they stay?”

One strategy for increasing retention rates has been to place stronger emphasis on the needs of learners during the development and delivery phases of e-learning projects. This strategy involved moving away from traditional domain-centred pedagogy and toward a learner-centred perspective. The shift from domain-centred to learner-centred design has been undertaken in order to increase the effectiveness and relevance of teaching practice.

To date, comparative research on the effectiveness of online learning has tended to focus on classroom-based learning. In this context, many early versions of online instruction extended classroom-based pedagogical practice into online learning environments (Gifford & Enyedy, 1999). Traditional classroom-based pedagogical practice has been highly dependent upon "the transmission model of knowledge transfer…[in which] knowledge is an identifiable object that is possessed by a person, detached from any social context, that can be conveyed from the mind of the instructor to the mind of the student" (Gifford & Enyedy, 1999, p. 2). Given the epistemological perspective that knowledge-to-be-learned is an object that may be possessed and transferred, Domain Centered Design (DCD) tends to focus on design and development activities that lead to well-organized and well-presented knowledge objects (Sims, 2001). Rather than taking into account the needs, wants, and desires of the learner, "the focus of pedagogy from this perspective is to make transmission more efficient" (Gifford & Enyedy, p. 2). As a result, learners who use online products and services created from a DCD perspective tend to struggle with difficulties similar to those that have long challenged traditional distance learners who have used print-based materials (Beffa-Negrini, Miller, & Cohen, 2002).

In contrast to DCD models of knowledge acquisition, learner-centred, activity-centered, situated and participatory models of instructional design and development focus on demographic and cognitive profiles of learners, prior knowledge, perceptions, preferences, needs, goals, characteristics, and experiences of learners. While individual theorists have drawn distinctions among learner-centered, activity-centered, situated and participatory models (Gifford & Enyedy, 1999; Reeves, 1999; Vinicini, 2001; Wilson,

1995), for the purposes of this chapter, the commonalities among these models were considered and are referred to here as learner-centred design (LCD).

The underpinning tenet of each of these models is a shift of *focus* from what is known about and what is valued within a content domain (DCD) to what is known about and what is valued by learners (LCD). This shift is away from primary concern for what will be taught to a careful examination of learner characteristics and to ensuring that learners will perceive content as worth knowing (Sims, 2001). Subsequent development activities are then focused on ensuring that essential content is contextualized in learner experiences and/or goals, so that learners will be motivated to value it.

A case study conducted at Boise State University (BSU) exemplifies the difference that may be made by a shift from DCD to LCD. In 1989, Boise State launched a distance learning online/off-Web, masters' degree program in Instructional Performance and Technology (IPT). A variety of undergraduate degrees were accepted for entrance into the program; however, much of the curriculum assumed prior knowledge in the fields of psychology, educational psychology, and instructional design. Most students were full-time working professionals in fields other than education or instructional design. A common motivation for entering the program was to make a career change or to specialize in training within an existing profession. All students were required to make substantial commitments of weekly time and long-term planning. The program was, for its time, rather expensive, and its service level to students did not match either its fee level or learner needs. Students were required to have access 15 hours-per-week to a computer system valued at approximately $3000 US in order to interact with the *FirstReader* courseware system that delivered the program. Tuition fees per 3-credit

course, by 1995, had reached $999 US. Despite their considerable initial commitments, "between fall 1989 and fall 1996, 44 per cent of the students had dropped out" (School's Founder, 2002, p.4). In a series of exit interviews conducted by Chyung (2001), the most often cited reason for attrition was "discrepancies between… professional or personal interests and the curriculum or the course structure" (Cause analysis, ¶ 1). Course developers at Boise State took this feedback seriously. A series of changes were made to the *IPT* curriculum and course structure. By the end of the 2000 term:

> BSU's department of Instructional Performance and Technology had decreased online attrition to 15 per cent by focusing on its first-time Internet learners…. The department also devised interventions to address students' unfamiliarity with the subject matter; varying interests, goals, and learning styles; and desires for personal contact and social interaction (School's Founder, 2002, p. 4).

Transforming classroom-based and distance education models into distributed learning opportunities has the potential to better serve traditional, on-campus learners and non-traditional, distance learners. Distributed learning adopts a learner-centered approach to pedagogy and "integrates a number of technologies to enable opportunities for activities and interaction in both asynchronous and real-time modes….This approach gives instructors the flexibility to meet the needs of diverse student populations, while providing both high quality and cost-effective learning" (Bates, 2000, p. 27) Distributed learning models provide faculty with more flexible working conditions, which in turn allow faculty the opportunity to more easily balance teaching and research responsibilities.

An element that distinguishes distributed learning from other modes of instruction is its use of CMLTs to facilitate peer-to-peer learning: "students do not so much interact *with* the technology as *through* the technology with teachers and other learners" (Bates, p. 27). Interacting with peers via online communication promotes "collaborative learning," and builds teamwork capacities (Bates, p. 27). Interacting with teachers, and in some cases external experts in the field of study, extends learning for both traditional and non-traditional learners well beyond the campus of the university, potentially into previously inaccessible work- and research-related arenas. Thus, the benefits of distributed learning opportunities are well suited to the demands of the global learning society and strategically suited to university goals, such as the provision of high quality and cost-effective learning.

Finally, designing CMLTs for reuse has become a topic of increasing interest. The escalating costs of designing and developing high quality CMLTs is driving this interest and creating a new area of educational research: reusable learning objects (RLOs). RLOs and RLO repositories have been hot topics of debate across the educational sector (Wiley, 2002).

Even the definitions for these terms have been controversial. The Institute of Electrical and Electronics Engineers' Learning Objects Metadata (LOM) Working Group (2002) defined learning objects as "any entity, digital or non-digital, that may be used for learning, education or training" (Institute of Electrical and Electronics Engineers, 2004, ¶1). This definition has been broadly applied in commercial venues, but has received significant criticism from the educational community because its breadth is perceived as rendering the term meaningless. Wiley (2002) alternatively defined learning objects as

"any digital resource that can be reused to support learning" (p. 6). Merrill (2001) offered a distinction between learning objects and knowledge objects: knowledge objects include "only the content to be learned but not an objective, presentation, or assessment; learning objects are distinct from knowledge objects in that they also include an objective, some instructional information, and assessment" (Wiley, p.11).

Similar controversy has surrounded the definition of learning objects repositories. Definitions have ranged from an alternative term for a database to a specialized computer server that houses information in a structured environment, which is organized and accessed via metadata. "Metadata, literally 'data about data' is the descriptive information" about both knowledge and learning objects that allows them to be retrieved from an electronic repository via a search mechanism (Wiley, 2002, p. 8).

Definitional debates aside, reusable electronic learning objects and the repositories that house them promise sufficient cost-effectiveness to warrant attention (Daniel & Mohan, 2004). CANARIE, Canada's advanced Internet development organization, has contributed $10 million over the past five years to the research and development of reusable electronic learning objects and learning objects repositories (CANARIE, 2003, p. 2). This investment has been aimed at "attain critical mass [of RLO users] to demonstrate value" and "address [the] major problem" of developing cost-effective approaches to managing CMLT learning opportunities (CANARIE, p. 2). Another "nearly $10-million Canada-wide project called LORNET (Learning Objects Repositories Network)" has been designed to "research and develop specialized software tools that will be used to mine the world's databases for suitable learning materials and

help assemble sequences of 'learning objects' into larger lessons or course modules" (On Campus News, 2003, ¶ 1 & 5).

In more advanced e-learning environments, learning agents can broker relationships among learners, experts, and objects by matching learner profile information for the purposes of recommending specific resources and peer-to-peer, as well as expert-to-novice, support (McCalla, 2004; Mohan & Greer, 2003). In combination with learning objects and agents, user-tracing software can detect user-behaviour, analyze behaviour patterns, and assist the agents in making increasingly accurate recommendations (Zaiane, 2002). Thus, the system can *learn* to effectively link individuals to others who share their interests and who can provide peer or professional assistance. The system can also *learn* to recognize resources that match individuals' learning styles and learner goals, thus enabling individualization of user experiences (McCalla, 2004). While data-mining and expertise-location tools are still in the research and development phase, in combination with learning objects technologies, their development holds significant promise for future personalization features and community-building functionalities within e-learning systems.

Finding or creating cost-effective avenues to create, customize, use, and reuse CMLT artifacts, and to create the conditions for communities of users to support each other in their learning goals, are emerging fields of research and development, which will be of significant interest to university leaders, who face concerns about "how and where to invest scarce resources" (Suter, 2001, p. 29) in technological innovations for teaching and learning. As accumulating existing CMLT resources reach a management and

maintenance crisis-point, these issues will come to the fore of the list leadership challenges in higher education.

In *Figure 6,* two hypotheses are illustrated: one suggests a current state of the pedagogical praxis within the academy and one recommends pedagogical attunement for successful adoption of CMLTs.

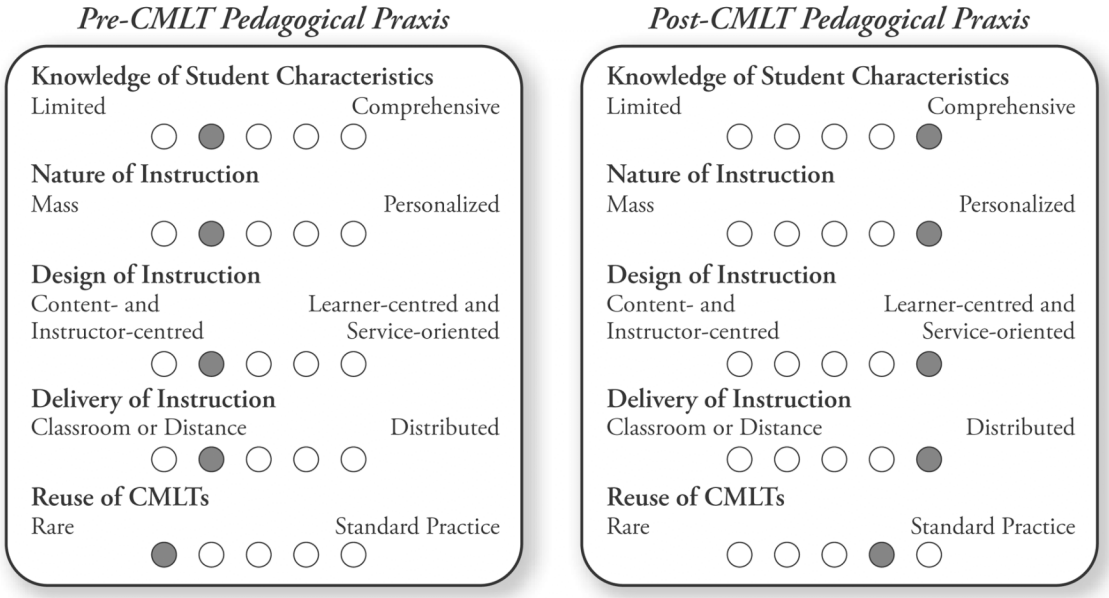


Figure 6. Pedagogical praxis "in tune" with CMLT initiatives.

Summary

The global learning society, and its demands upon members of society to learn their living, are now transforming and will continue to transform the academy. At this juncture, traditional research universities may need to examine their e-learning policies and practices to effectively adapt to a complex, ambiguous, and dynamic external environment. University leadership needs to strategically respond to the pressing

demands of external forces for change. By attuning internal organizational structures, cultures, economies (reward systems), and pedagogical praxes to changing academic times the academy can embrace CMLT solutions and their associated service orientation to ensure its ongoing position as *the best option* for higher education. University leadership needs to strategically respond to the demands of external forces for change.

In the subsequent chapters of this dissertation, existing organizational structures, cultures, economies (reward systems), and pedagogical praxes at one traditional university have been examined from the perspectives of eight faculty members and eight instructional designers, who participated in this study. Data provided by participants has been analyzed to determine current driving and restraining forces within this university for the successful adoption of CMLTs and an associated service orientation to flexible student access to higher education.

CHAPTER THREE:

RESEARCH METHODOLOGY

The purpose of the study was to examine four continua of university praxis. Specifically, the study investigated instances of organizational structural, cultural, pedagogical, economic (reward-system), influences on faculty adoption of CMLTs. An attempt was made to discern the driving and restraining forces that influenced the adoption of CMLTs by faculty members in a traditional research university, and to ascertain the extent to which university policies and practices are perceived to be aligned to support the successful design, development, and implementation of CMLTs. Given the nature of the study, focus groups and interviews were deemed to be appropriate because in-depth accounts of faculty experiences were needed.

Lewin's (1951) social force field theory was used as the framework through which to address the questions in this study in order to illuminate and clarify the complexity embedded a traditional university's faculty perceptions of and interactions with the provincially funded Technology Enhanced Learning (TEL) initiative. Social force field theory assumes that "behaviour *(B)* is a function *(F)* of the person *(P)* and of his [or her] environment *(E), B = F (P. E)*" (Lewin, p. 239). In this conceptualization, "the person *(P)* and his [or her] *(E)* environment" are "considered as *one* constellation of interdependent factors," identified as a "life space" (pp. 239-240). A life space includes "a total situation…. represented in [a] particular setting within [a] specific situation" (p.240). The "totality of coexisting," "mutually interdependent" data that influence a life

space is "called a [force] *field*." (p. 240). An underpinning assumption of force field theory is that a force field "exists for [an] individual at [a] particular point in time," and that "physical and social conditions limit the variety of possible life spaces," during a specific timeframe. Physical and social conditions within a particular timeframe act as the "*boundary conditions*" of a force field (p. 240).

Lewin's (1951) bounded life space construction of the interrelatedness of physical and social conditions influencing and being influenced by individual "goals, needs, stimuli, [and] social relations" (p. 241), is well aligned with a phenomenological approach to researching "subjective meaning making, contexts in which people make meaning, and 'the rules of interpretation that people follow in their everyday lives'" (Alasuutari, 1995, p. 36). As a phenomenological approach to research assumes "what can be known about reality is a social construction," it is appropriate to employ Lewin's conceptualization of bounded life space in a social constructivist study. Further, because Lewin's conceptualization of life space as contained within boundaries, it became appropriate to select a qualitative case study approach to examine the "integrated," (Stake, 1995, p. 2) bounded system of faculty experiences with TEL-sponsored CMLT projects.

The group of CMLT projects at the university under study have been bracketed within a 2000-2005 timeframe, and within this timeframe three force field perspectives: the macro, the mezzo, and the micro, inform this study. At the macro level, a range of external economic and social forces are examined to identify potentially driving and restraining influences on CMLT adoption. At the mezzo level, institutional policy documents and a provincial report were examined for driving and restraining forces that

bear upon project completion. At the micro level, focus group data, and interview data contributed to an in-depth understanding of individual instructional design and faculty experiences. Synthesized, macro, mezzo, and micro perspectives provided an in-depth description of the driving and restraining forces influencing life space within the CMLT adoption field.

Research Design

This study had as its primary focus, the description, analysis, and interpretation of the driving and restraining forces that influence faculty life-space within the CMLT adoption field. In order to elicit information about individual experiences, the "constellation of interdependent factors" (Lewin, 1951, p. 239), identified as faculty "life space" (p. 240) within the CMLT adoption field, was explored. A four-stage approach was used.

In Stage 1, one preliminary focus group session with seven instructional designers and one individual interview with an instructional designer (who could not adjust his schedule to attend the focus group session) were held. All participants had been team members in TEL-sponsored CMLT projects. The designers were asked if they perceived patterns in the range of projects they had managed. See Appendix D: *Instructional Design Focus Group Protocol*, for the specific questions addressed in the instructional design focus group/interview.

I, as the researcher, audio-taped and transcribed the audio files from the focus group session and the interview. Participants were reminded that the audio-tape would be turned off at their request. This protocol was requested and honored twice. Transcripts were distributed to all participants for their review and revision. Revisions were made, as

requested, and revised transcripts were returned to the participants. All participants signed *Transcript Release Forms* (See Appendix F).

Data collected from this part of the first stage of the study were analyzed to determine if there was sufficient consensus to hypothesize a typology of CMLT projects. Sufficient consensus was not found.

If sufficient evidence had been found to support the hypothesized typology, this typology would have been used a frame of reference from which to analyze project records to identify information-rich CMLT projects suitable for "in-depth study" (Patton, 1990, p. 101). Information-rich projects include "critical," "typical," and "politically sensitive" cases (Patton, pp. 102-103). Critical CMLT cases included those projects, to which evidence of exceptionally high or exceptionally low expectations for success were associated. Typical CMLT cases included those projects, which were broadly considered "run-of-the-mill" (Patton, p. 102) projects that conform to design, development, and delivery norms. Politically sensitive cases were those cases where exceptions have been made to institutional policy in order to accommodate specialized research or teaching agendas.

The data from the first part of Stage 1 of the study neither clearly supported nor clearly refuted the hypothesized typology. Half the participants supported the idea of there being a typology of projects and half strongly refuted the idea of a typology. The half who did approve of the use of a typology as a frame of reference for identifying information-rich projects did not agree on a particular typology. Therefore, I, as the researcher, felt it impossible to use any kind of typology as a frame of reference for selecting information-rich projects. I reexamined the data from the instructional design

focus groups in order to determine a heuristic capable of explaining the findings. The result was a model of the process of CMLT project development.

As a result of finding that project process analysis, rather than the hypothesized project-type analysis, was an indicator for information-rich projects from which "the most [could] be learned" (Merriam, 1998, p. 61), I returned to my committee and asked permission to adjust my research design to emergent circumstances. Permission was granted.

I revised the study to include a second part within Stage 1 of the study. The second part included two one and a half-hour instructional design group members' checks, designed to confirm, modify, or refute the validity of the process model and its usefulness as a basis for identifying a "purposeful sampling" approach to faculty participant selection (Patton, 1990, p. 169). I presented tentative findings to the instructional design participants, and received feedback on modifications that could improve the model. At the close of these focus group sessions, I asked participants to use the revised model to identify information-rich projects.

The members' checks focus group sessions were audio recorded. Participants were reminded that the audiotape would be turned off at their request. This protocol was requested and honored. Transcripts were distributed to all participants for their review and revision. Revisions were made, as requested, and revised transcripts were returned to the participants. All participants again signed *Transcript Release Forms*.

Participants agreed to provide me with information regarding information-rich projects, but they requested private interviews as the process for providing the requested information. Further, participants requested that private interviews be conducted at places

and during times that they would determine. Finally, participants requested that these private interviews would not be audio taped. Rather, I would be allowed to take field notes. Participants would review and approve field notes prior to my using the results in this study. Each of these requests was granted.

Eight individual interviews were conducted with the instructional design group. Six of these interviews were conducted in participants' private offices on campus. Two were conducted off-campus, after working hours. At the close of this set of interviews, fifteen potential participants for the remaining stages of this study had been identified. Fourteen of these potential participants were faculty members. One was a graduate student. Only two potential participants were recommended for the pilot phase of faculty interviews. Invitations were sent to these two potential participants. One agreed to participate.

The second stage of the study was a pilot of the semi-structured faculty interview with the one faculty member who had been recommended for the pilot stage and who agreed to participate. Feedback was sought on the quality of both the interview questions and the interview experience. Please see the Appendix E for the *Faculty Interview Protocol*. Participant feedback from the pilot resulted in clarifying the initial questions and refining the interview techniques.

Invitations to participate in the remainder of the study were sent to the remaining twelve faculty members and the one graduate student identified by instructional design participants as leaders of "information-rich" TEL projects. Seven faculty members and the graduate student agreed to participate.

The third stage of the study involved conducting interviews with the seven faculty members and one graduate student who been subject-matter experts in CMLT development teams during the 2000-2005 timeframe. Each of these interviews was approximately one-hour long and each one was audio taped. Participants were reminded that the audiotape would be turned off at their request. This protocol was requested and honored. Transcripts were distributed to participants for their review and revision. Revisions were made, as requested, and revised transcripts were returned to the participants. All participants signed *Transcript Release Forms*.

Each transcript was condensed from its original form to an abbreviated narrative representation. All narratives were returned to participants for their approval, revision, or rejection. No participant chose to reject a narrative. Revisions were made, as requested. Revised narratives were returned to participants for their final approval. All participants approved the revised narratives for inclusion in this study.

Narratives were analyzed for emergent themes. Emergent themes were examined to determine if or to what extent there may be "an essence or essences to [the] shared experiences" (Patton, 1990, p. 70) among faculty (and one graduate student) who have undertaken CMLT projects. A focal point of this examination was to discover if or to what extent driving and restraining forces would emerge. Specific attention was paid to comments that addressed personal/economic, professional/pedagogical, collegial/socio-cultural, and/or institutional policy-procedure issues or concerns. The product of the interviews was an attempt to relate participant descriptions of project-specific experiences to the four principle questions posed in this study.

In order to compare and contrast the macro "policy-in-intention" or explicitly stated "goals and intents" of the provincial TEL program; mezzo "policy-in-action" or explicitly stated "goals and intents" of the university for involvement in the provincial TEL program; and micro or "output of the policy-making system" as described in the content of the narratives (Guba, 1984, p. 65), the fourth stage of the study involved an environmental scan of publicly available TEL documentation. This evidence was analyzed in an effort to determine if or to what extent micro faculty interview data could be corroborated with policy documents. Further, emergent themes from the document analysis, were interpreted within the context of the literature review in this study for emergent issues and concerns in CMLT policy fields. Data from this stage of the study was used to answer the principal questions of this study, and then to use the answers to construct heuristics that address key concerns (Merriam, 1998):

1. Alternative explanations for successes and encountered problems.
2. An underpinning rationale for what happened and why.

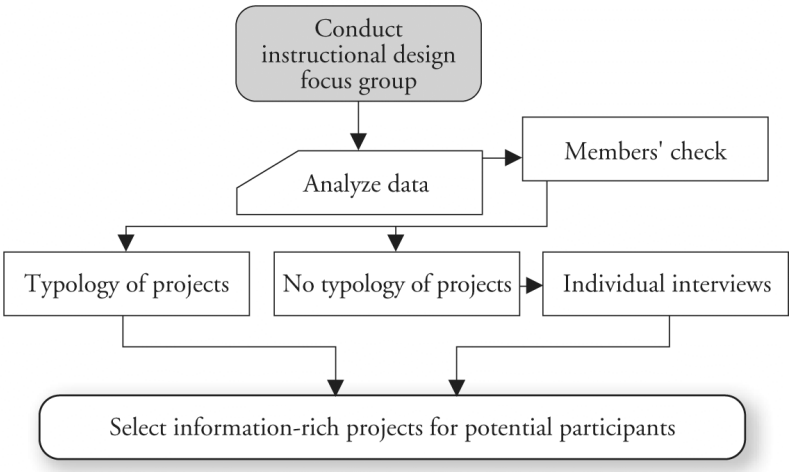
See Figure 7 for a research design flowchart.

Criteria and Unit of Analysis

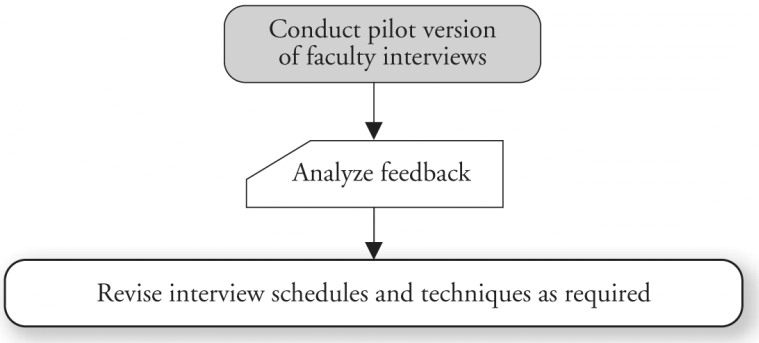
The examination of the ecological setting of the academy focused on CMLT development experiences (individual TEL projects) as the unit of analysis for an e-learning initiative for alignment and attunement with personal, departmental, collegial, and institutional goals, as well as with larger social and economic forces. If the planning, design, and implementation of CMLT initiatives can be deemed worthwhile, initiatives must have sufficient utility; they must "meet some need" and they must be operationally, fiscally, and politically viable (Guba & Lincoln, 1985, p. 227). Further, e-learning

Research Design

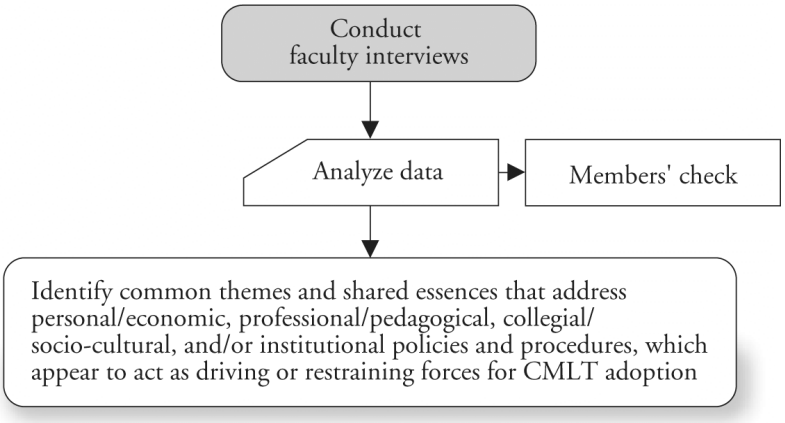
Stage 1: Data Collection & Analysis



Stage 2: Data Collection & Analysis



Stage 3: Data Collection & Analysis



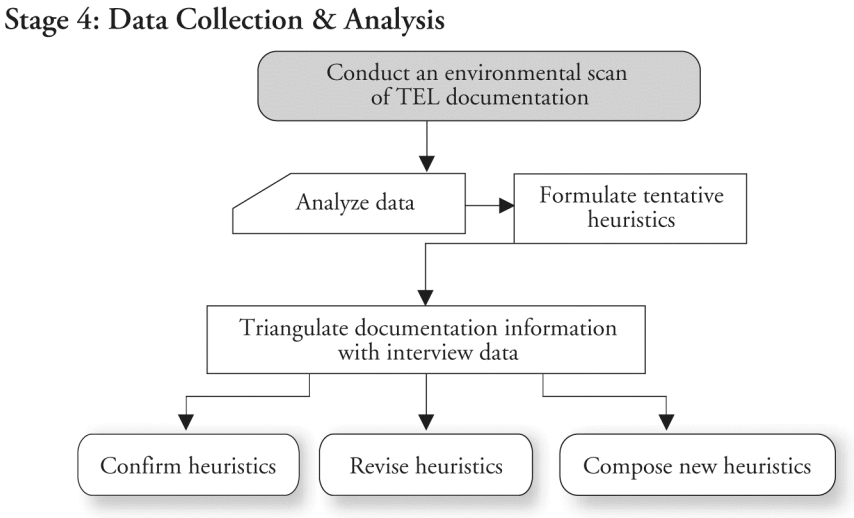


Figure 7. Research design flowchart.

initiatives must be, and must be seen to be, efficacious adjustments to emergent circumstances, for which alternative responses would be insufficient (Ruttenbar, Spickler, & Lurie, 2000). Determining whether or not CMLT initiatives are valuable enough to warrant continuation involves consideration of the mission of the university, as well as the social context of contemporary society and the demands that society is placing on the university. If within the economic, social, and pedagogical and organizational contexts of the university, the initiatives can demonstrate sufficient utility, viability, and value, then support for their continuation is a worthwhile endeavour.

Determining if CMLT initiatives may provide sufficient utility, viability, and value to the academy depends, in part upon, constructing an understanding of the driving and restraining forces for their adoption. Validating the criteria for CMLT innovation viability was achieved through the staged process of this study.

The first two phases of the study provided evidence of whether or not a typology of CMLT projects could be theorized and/or applied to understanding individual

experiences. The faculty pilot phase served to refine initial questions for faculty members. Data from subsequent faculty interviews provided answers to "what happened" and "why did this happen" questions. This data also served to illuminate the "integrated," (Stake, 1995, p. 2) bounded system (Smith, 1978) of faculty experiences with TEL-sponsored CMLT development projects. In concert with the document analysis and literature review, the full data set from this study provided some evidence the extent external forces may be influencing the bounded context of the study.

Finally, the faculty members' checks on the extant content of individual narratives included in Chapter 5 allowed participants to ensure their "life spaces," were accurately represented in my report of my findings (Guba & Lincoln, 1999).

Site Selection

Although the TEL-sponsored CMLT initiative includes educational sector-wide institutions across one province, and therefore, includes varied administrative units and media and information technology experts, the scope of this study has been limited to describing, explaining, and interpreting one university's experience. Two other universities, the K-12 sector, regional colleges, and a technical institute, each of which have significantly different foci of concern, are excluded in order to achieve a commonality among the physical and social life spaces of participants.

Participant Selection

Instructional designers, who had been team leaders in my university during the 2000-2005 timeframe of the study, were asked to participate in order to elicit their expertise on whether or not a hypothesized project typology could inform this study. Data gathered from the preliminary phase were used to identify an appropriate methodology

for selecting a range of information-rich cases, and therefore, the faculty members who could provide that information.

Faculty members and a graduate student from the university where the study took place were invited to participate in the latter stages of the study. As the study was limited to one university's faculty life spaces, the complete set of findings may not be broadly generalizable beyond the context of the study. Rather, the endeavor of this study was to understand the particularities (McLean, 1999) of organizational, cultural, pedagogical, and economic elements of one university's faculty experiences in adopting CMLTs into their teaching praxis.

Sampling

In order to ensure sufficient continuity among participant life-spaces, and therefore, to create a bounded case study, purposive sampling procedures were undertaken. As a result of purposive sampling, subject matter expert (faculty) participants were all involved in CMLT development through a TEL-sponsored project in the 2000-2005 timeframe.

Researcher Bias

In the role of instructional designer for several of the TEL project teams, I, as the researcher, acknowledge my stance as a complete-member researcher within the life space of some participants. A "complete-member researcher," as defined by Alder and Alder (1987), refers to a researcher who is fully committed to and immersed in the [contexts] he or she studies" (Ellis & Bochner, 2000, p. 741). In contrast, data was also collected from faculty members whose TEL development projects took place at my home institution, but in which I had no involvement. Thus, my position was two-fold: a

complete-member researcher within some development teams and an aware observer of teams in which I did not participate. In those areas of this study where my role was one of a complete-member researcher, there is a risk of an introduction of researcher bias. Further, in the role of instructional designer, my professional foci and concerns, as well as personal criteria for evaluation of the relative success of projects may significantly differ from faculty perceptions. Therefore, I guarded diligently from allowing my perceptions from biasing the results of this study.

In an attempt to mediate researcher-bias in this study, I included a pilot phase for initial questions. It is my hope that feedback from the pilot phase of the study clipped the wings of the *butterfly effect*—the state of having "sensitive dependence on initial conditions" (Cross, 2001, ¶ 1), and expanding the influence of researcher bias throughout the study. Further, members' checks were conducted. Participants provided feedback on both the interview transcripts and the narratives that were drawn from the transcripts. Revisions were made to the initial heuristics (Guba & Lincoln, 1999), as well as specific wording. If I had allowed my professional perceptions to influence the formation of heuristics, the members' checks should have mediated this effect. In addition, I have reported findings in Chapter 5 under two categories. The first category identifies me as a complete-member researcher and the second category identifies me as an aware observer. This distinction is intended to alert readers to specific findings where researcher bias may have been introduced.

This study took place within the context of the inquiry. Since I was deeply involved in this setting for more than four years, there was a "prolonged engagement" benefit of credibility for the study (Guba, & Lincoln, 1999, p. 147). This benefit should

have allowed me to overcome "misconceptions" and "identify salient characteristics" (Guba, & Lincoln, 1999, p. 147). As I participated in "the normal life" of TEL project development, I had the advantage of applying what I had learned about the "culture and interactions" among team members "to produce research findings" (Taft, 1999, p.113). This "insider's knowledge" allowed me to acquire "tacit knowledge" of the situation of concern, which in turn, can be valuable in identifying issues of significance (Taft, 1999, p. 113).

The Timeframe of this Study

I estimated the length of the data collection and analysis would be one year. I believed this time period would allow for necessary and sufficient time to work through all stages of the study and to include interim reflection opportunities. However, completing Stage 1of the study required an adaptation to emergent circumstances. The resultant need for scheduling and conducting individual interviews with instructional designers, as well as additional time analyzing data from these interviews, expanded the scope of the study. Therefore, the study took two years to complete.

Ethics

As all participants in this study were professionals in an academic setting, it can be reasonably assumed that they are familiar with the research process and are able to self-determine whether or not it involves any measure of risk. Thus, this study was accepted within the minimal risk category of my home university's Research Ethics' Committee guidelines. While I had institutional relationships with some participants, none of these relationships involved an opportunity for me to exercise power over participants. Furthermore, the intended use of results from the interviews was solely as

descriptive and explanatory information, i.e., information was not used to evaluate individuals in any way.

The University's *Consent Form Guidelines and Template* was used to acquire consent from participants. As per the criteria set out in the *Consent Form Guidelines and Template*, participants were assured that they could withdraw from the study at any time without concern for any measure of harm. Please see Appendix A for the *Ethics Proposal* for this study.

Participant anonymity was carefully managed. Participants were not named in the findings. A brief discussion of the need for confidentiality preceded and followed the focus group sessions. All participants were given the opportunity to reflect upon their interview transcripts and/or focus group transcripts. Participants were sent a *Transcript Release Form*, and asked to review interview and/or focus group transcripts prior to submitting the form. This process allowed participants an opportunity to reconsider and revise their responses.

At the close of the study, I asked each participant if he or she wished to be involved in a debriefing session. The purpose of the debriefing session was to elicit participant feelings about the process of the study, as well as to bring the experience to closure.

I assumed responsibility for storing data in a secure place for five years upon completion of this study. The interview tapes, field notes, print versions of electronic communications and transcribed data have been stored in a locked storage area. Electronic communications have been deleted from the hard drive of my computer. Print-

based participant consent forms have been stored separately in another locked storage area. Electronic versions of the participant consent forms have been destroyed.

Summary

The research design for this study included four stages. Stage 1 was carried out in three phases: (1) a focus group / interview with eight instructional design participants, (2) members' checks to review preliminary results, and (3) individual interviews conducted to identify information-rich TEL-sponsored CMLT projects and potential faculty participants for Stages 2 and 3. The faculty interview protocol was piloted in Stage 2. In Stage 3, seven faculty members and one graduate student were interviewed. Stage 3 interview data were recorded as narratives. The narratives were returned to participants for approval, revision, or rejection. Approved and revised narratives were analyzed for emergent themes. Data from Stage 3 of the study were corroborated with institutional and provincial documentation in Stage 4.

CHAPTER FOUR:

PRESENTATION AND DISCUSSION OF INSTRUCTIONAL DESIGNERS' DATA

The purpose of involving instructional designers in Stage 1 of this study was to determine a methodology for selecting information-rich Technology Enhanced Learning (TEL) projects within my home university context. I theorized that instructional designers, who lead TEL development teams, would be best positioned to determine if there was a typology of TEL projects. If there was a typology of (TEL) projects, the typology would have been used as a basis for purposeful sampling. If a typology was not found, then an alternative strategy for purposeful sampling would need to be identified. I hypothesized that if no typology within (TEL) projects was found in the analysis of data collected from an instructional design focus group, the most appropriate response would be to conduct a project documentation review. This hypothesis proved to be wrong.

The data needed to identify information-rich projects required an extension of the semi-structured questions for the instructional design participants. I requested and received permission from my committee members to adjust my research plan to accommodate this finding in order to conduct individual interviews with the instructional design participants.

The Participants and Their Contexts

Eleven invitations to participate in the study were sent to individuals who had the responsibility to lead TEL project teams at my home university during the 2000 to 2005 timeframe. Eight individuals agreed to participate. Six of the eight participants were

members of the Instructional Design Group (IDG) at my home university. One participant, from outside IDG, held the dual responsibilities of instructional design and curriculum development for a TEL project. One participant's primary responsibility in multiple TEL projects was for media development; however, this participant contributed to instructional design decisions in several TEL projects. Two participants held tenured instructional design faculty positions at the university and two were in tenure-track faculty positions. Three participants held term faculty appointments. One participant had a senior professional and administrative appointment. All participants had five or more years of experience in the field of instructional design.

Data Collection

The initial research design envisioned a single focus group session for all participants. However, scheduling difficulties resulted in the necessity to conduct one focus group session and one interview. Seven individuals who practiced instructional design in three organizational units at my home university participated in a semi-structured focus group discussion. The eighth instructional design participant was interviewed individually. During both the focus group session and the interview, I recorded field notes. The focus group session and the interview were audio taped and transcribed. Participants were informed that they could ask to have the audio taped turned off at any time.

All participants were asked to respond to four questions:

1. Did you perceive patterns in the projects you manage?
2. Were there differences between projects designed for:
    a. Undergraduate and graduate learners?

b. Science versus social science or humanities programs?

c. Tenured versus non-tenured instructors?

3. Were there project types that can be defined using other distinguishing features?
4. What comments do you have about project types that my questions have not addressed?

Analysis of Instructional Design Research Data

Data analysis was incremental. I transcribed the focus group and interview audiotapes. I read and reviewed the transcripts several times before field notes were added. After the field notes had been added to the transcripts, initial codes were constructed.

Initial codes were constructed from a combination of key terms in the semi-structured questions and emergent themes in the data. Following the initial coding, the transcripts were again reviewed for the purpose of determining various levels of consensus among participants in response to the four questions posed. Participants' statements were analyzed using a series of concept maps, propositions, reflective notes, and comparisons (Janesick, 1998).

In order to determine the degree of group consensus, a tally of participant positions in their responses to the four questions was taken. The first question addressed was, "Do you ever see that in one setting, one department, or one college, that there is a type of project or pattern within projects?" In response, four participants identified differences among projects (IDs-2, 4, 5, & 6, 18-05-2005); one participant argued that there is "no typology" (ID-1, 18-05-2005); and two suggested that types of projects were

related to project parameters – particularly, the ratio of online to offline activities and provision of resources (ID-5, 18-05-2005; ID-8, 05-08-2005). Three participants argued that discipline and department expectations could be used to differentiate among project types (IDs-2, 3, & 7, 18-05-2005). Four participants did not agree that college, department, or discipline could be associated with project types (IDs-1, 5, & 4, 18-05-2005; ID-8, 05-08-2005). In sum, participants were divided on the question of if college, department, or discipline could be used as a basis for creating a TEL project typology.

In response to the second question, regarding if a typology could differentiate between projects on the basis of the resulting courses as graduate and undergraduate courses, there was consensus within the group that the curricular content and expected levels of student-engagement with the content differed, but there was no support for the premise that a graduate-undergraduate distinction could be made in terms of project development types.

The third question addressed a potential difference in projects involving tenured or non-tenured faculty members as the subject matter experts (SMEs). Two participants stated that tenure status did make a difference (IDs-2 & 6, 18-05-2005); three participants disagreed (IDs-4 & 6, 18-05-2005; ID-8, 05-08-2005), and two argued that ‘it was not safe to generalize” (IDs-1 & 7, 18-05-2005). One participant suggested that a more significant difference was between sessional lecturers and tenure or tenure-track faculty (ID-4, 18-05-2005). The resultant discussion led to an analysis of SME status, power, access to support and resources, range of competing responsibilities, as well as level of commitment to project completion. No consensus was reached on if SME status should be used as a basis for differentiating among types of projects.

The final question, which solicited previously unaddressed possibilities for the basis of a typology of projects, led to a discussion of SME motivation for becoming involved in CMLT project development. Participants agreed that SME motivation influenced level of commitment and the quality of completed projects. However, while motivation was identified as a significant factor in the likelihood of successful project completion, no basis for creating a typology, based of SME motivations, was identified.

Responses to the four questions addressed in the instructional design focus group sessions did not provide sufficient evidence to support the hypothesized typography of TEL projects based on discipline or department, graduate or undergraduate course work, faculty status or motivation. Further, a review of textual context of individual statements showed that participants frequently provided both examples and counter-examples as evidence for the need to preface statements with qualifiers, such as "it depends (ID-8, 05-08-2005)," "sometimes (ID-7, 18-05-2005)," "alternatively (ID-4, 18-05-2005)," and to conclude statements with comments, such as "everything is debatable and grey" (ID-8, 05-08-2005). While the complexities of practicing instructional design in the polycultural contexts of various colleges within the university restricted designers' abilities to make generalizations, their stories provided in-depth information about their practice.

No Answers: Many Stories

Given insufficient evidence for a typology in the instructional design focus group data, I needed to go back to the transcripts and re-conceptualize a method for analyzing, structuring, and reporting meaning. I discovered, where the transcripts and field notes did not provide answers to the initial research questions, the transcripts and field notes both provided rich descriptive stories from the lives of instructional designers, whose

professional experiences were marked by the role and responsibility ambiguities, and whose professional practice was marked by "experimentation, … testing existing [processes and] procedures against proposed changes, … [and] seeking for small ways to improve (Alclay, 2003, p. 148).

These descriptions provided evidence of a social field within which perceptions of organizational structures, cultures, economies, and pedagogies influence all team members' motivations, flexibilities, and commitments to negotiate project visions. Common themes associated with project goals and deliverables, emerged. These common themes held potential for identifying a purposeful sample of "critical," "typical," and "politically sensitive" (Patton, 1990, pp. 102-103) TEL-sponsored CMLT projects. I organized the themes into a tentative model for participants' consideration.

In order to determine if the initial data analysis and associated model were valid, two instructional design members' check focus group sessions were held. Four participants attended the first session and four participants attended the second session. At each session, I began with a 20-minute presentation of preliminary results. The presentations were each followed by an hour-long critique of the initial findings. During both the focus group sessions, I recorded field notes. The focus group sessions were audio taped. Participants were informed that they could ask to have the audio taped turned off at any time. The audiotapes were transcribed. Transcripts were returned to participants for their comments and revisions. I reviewed the transcripts and field notes, and coded the documents in order to identify common themes and recommendations for change.

Instructional designers' stories were marked by unexpected changes to project scopes and sequences, difficult negotiations, and varied results. Common confounding external factors were identified. The focus groups identified a series of nine project factors related to faculty members' perceptions and positions at the beginning of TEL projects, as well as seven differences among designers' approaches to projects, differences related to the information technology and media requirements, and external confounding factors. Each of these factors is described in the following discussion.

Faculty Member Factors

Instructional design participants identified nine factors related to faculty members' perceptions of TEL project development, which influence processes and project outcomes. Faculty members' teaching philosophy, openness to new ideas and interest in pedagogical change, teaching experience, degree of technological savvy, competing responsibilities, power position within the institutional environment, leadership styles and perceptions of their own and other team members' status within project teams, motivation for becoming involved in a TEL project, and perception of a quality online course were each identified as significant factors in development.

One designer posited that the teaching philosophy or "philosophical bias of the instructor actually drives the instructional design" of TEL projects (ID-4, 18-05-2005). The surrounding discussion of the influence of teaching philosophy included consideration of discipline-based pedagogical cultures, as well as departmental and collegial influences on the development of a teaching philosophy. While focus group members remained divided on the point of how much influence departments and colleges have on an individual faculty member's teaching philosophy, general agreement was

reached on the significance of the faculty member's teaching philosophy in the development of a TEL project. One designer expressed a rationale for this significance:

> The contrast between the traditional approach and we'll call that the lecture model, whereby students are passive recipients of information, and they go away and try and make sense of it and transform it into knowledge. But the lecturer is basically the interpreter of the discipline for them. When you move it into an online environment, the technology you are using, itself, to a certain extent at least, reconfigures that relationship, alters not only what can take place, but what must take place. The students now need to talk to each other for this to be successful. They don't do that in a lecture hall other than at the very beginning or at the very end of a class. And that puts the prof in a different social situation as well because now the prof, although they may be leading the class in the discussion, they are not the center of attention any longer. In that virtual online environment, they are just another participant, one with some seniority, one with some authority, but nonetheless, they are only one voice amongst many. (ID-8, 05-08-2005)

Because of the pedagogical and social shifts required to move instruction into the CMLT environment, a second influential factor was the faculty member's openness to new ideas and interest in pedagogical change. Designers identified a range of initial faculty positions from, "There's only one way to teach X discipline, and so you're coming in now with some new wacky ideas that don't make any sense of me," (ID-8, 05-08-2005) to "I have this really wonderful idea to try and do something sort of off-the-wall

and interesting" (ID-4, 18-05-2005). In consensus, the instructional design participants included a combination of the faculty member's degree of openness to new ideas and the instructional designer's flexibility in negotiation as critical factors in the TEL project development.

Six of eight instructional designers identified the faculty member's level of teaching experience as a third important factor. A concern was expressed that new faculty members, who have no teaching experience, should not be asked to develop TEL projects. However, the comment was made that "it happens all the time" (ID-5, 18-05-2005). Another designer expressed a concern that long-term faculty members may perceive themselves as "the sage, the all-knowing professor" (ID-8, 05-08-2005) and this can make the transition to the CMLT environment as difficult as working with a faculty member with no teaching experience. Therefore, instructional designers need to be aware of faculty members' teaching backgrounds and be alert as to how different levels of experience may play into the TEL development process. Again in consensus, the instructional design participants expressed the importance of being aware of the teaching experience factor in order to respond appropriately to a variant landscape of expectations in negotiations toward a plausible plan for project completion.

A fourth factor, the degree of technological savvy individual faculty members possess, was identified by five of eight participants. Technological savvy was described as a combination of levels of "interest" (IDs-1 & 7, 18-05-2005), "experience," (ID-4, 18-05-2005) and comfort with using information technologies for teaching, as well as technological skill and willingness to experiment. General agreement was reached that this factor significantly impacts TEL development projects, and it was noted by four

designers that faculty members' levels of technological savvy can be expected to change through the course of a project (IDs-1, 2, & 3, 18-05-2005; ID-8, 05-08-2005).

Competing responsibilities, such as teaching load, departmental or committee duties, and research responsibilities with which faculty members must balance their use of time was identified as a fifth important factor. Designers discussed the importance of being sensitive to sessional faculty members' "contract" limitations (ID-4, 18-05-2005), tenure-track faculty members' concerns about meeting tenure requirements that "don't recognize online courses" (ID-6, 18-05-2005), and senior faculty members' research programs. Again, it was noted that this factor is often subject to change during project development. Two designers reported TEL projects that remain incomplete because a faculty member received a research grant, and therefore, shifted his or her priorities from project development to research activities (ID-5, 18-05-2005; ID-8, 05-08-2005).

The sixth factor, power, is an extension of the fifth. A faculty member's power position within the institutional environment was unanimously identified as a significant factor in project development. The relation between power, and "therefore having access in "a legitimately part-of-the-college way," to access technology, to access support, and so on" can impede or empower a faculty members' contribution to project development (ID-4, 18-05-2005). Participants described power variances as ranging from a sessional faculty member who reported, "I apologize for being so honest, but I can't work without a contract" (ID-4, 18-05-2005) to tenured faculty members struggling to devote sufficient time and effort to a TEL project without sufficient departmental support (ID-7, 18-05-2005), to faculty members in small departments who have departmental support, but

insufficient resources (ID-5, 18-05-2005), and finally, to a departmental program approach which is well planned, resourced, and supported (ID-8, 05-08-2005).

Faculty members' leadership styles, their perceptions of their own and other team members' status within projects, were widely discussed. All participants agreed that the faculty member's leadership style is an important factor. One designer noted that some faculty members "need a better orientation to the fact that [project development involves] working with a team" (ID-5, 18-05-2005). Another designer reported:

> I have run into certainly tenured faculty who in the initial first few meetings were quite defensive even…. Certainly reticent to, not open to new ideas around how we might approach online learning. On the flip side though, I have had tenured faculty, senior, you know full Profs, who this is a completely new experience for them. Certainly a new context for teaching and learning, and they've been open-minded and respectful enough to respect what they know a lot about and what they don't. And they don't know a lot about online learning initially. (ID-8, 05-08-2005)

A third designer reported a scenario where a faculty member's leadership style within a CMLT project could be best summarized by a first-day-of-online-class message to students, "We're both learning here. We're just trying" (ID-7, 18-05-2005).

An eighth factor, faculty motivation for becoming involved in a CMLT project was by consensus, identified as a critical factor. The range of collegial, departmental, and personal motivations for submitting a funding application included:

- Collegial and departmental "succession" planning (defined as legacy or faculty transition strategies to ensure program continuity in the face of

large-scale retirements), sometimes in concert with individual faculty member's planning for "part-time teaching during retirement" (IDs-2 & 7, 18-05-2005);

- Technological fascination: e.g., "Wow, look at that neat technology. Let's run out and try that," and where the media often becomes little more than "flash and crackle" (ID-1, 18-05-2005; ID-8, 05-08-2005);
- Individual faculty members' intentions to eliminate time- and place-based teaching responsibilities in order to create lifestyle "flexibilities" via online instruction (IDs-1 & 2, 18-05-2005);
- Individual faculty members' needs or desires to include technology-based teaching in their repertoire of experiences: e.g., sessional lecturers seeking new skills in pursuit of career advancement (ID-5, 18-05-2005).
- Problem-solving or "an impulse to extend learning": "geographically," (i.e., providing new "learning opportunities" and "resources" to off-campus students, or pedagogically: i.e., as a strategy for meeting currently unaddressed "learner needs" to extend the "depth of learning," through "reaching the students in another way" (IDs-1, 4, & 7, 18-05-2005)

All instructional design participants agreed understanding faculty motivations for TEL development was an essential part of determining level of commitment to projects, and a critical factor in predicting potential strengths and difficulties in the project development process.

The ninth and final factor, identified by the instructional design group was the faculty member's perception of a quality online course. Participants identified a series of

seven initial faculty expectations for online courses that fall along a hypothesized *quality* continuum of learning environments:

- An electronic filing cabinet of text and image resources that are "just transmissive" and "pretty much of a yawn, quite frankly" (ID-4, 18-05-2005).
- "The lecture model, whereby students are passive recipients of information" (ID-4, 18-05-2005).
- Basic electronic "manipulatives" or exercises, which provide a minimal level of student engagement with content (ID-1, 18-05-2005).
- "Tutorials and drills" to support mastery of basic knowledge and skills (ID-1, 18-05-2005).
- Rich media "games and simulations" which can deeply engage learners with content: e.g., creating media for students of medicine and veterinary medicine, capable of making "the un-visual" internal elements of anatomy or physiology "visual," thus supporting learners' abilities "to make the diagnosis." (ID-3, 18-05-2005).
- Forums for "problem-solving," exchange of "creative" works, and "critical thinking and analysis, and … theory into practice," which can promote in depth learning through multiple modes of learner, content, and instructor engagement and interaction (ID-2, 18-05-2005; ID-8, 05-08-2005).
- "Real world," "contextualized," "collaborative projects" where students collect and analyze data, and then use electronic means to "talk about it"

> and "debate an issue," among each other and with the instructor, and as a result, "bring a discipline to life" (ID-8, 05-08-2005).

Three of eight designers qualified the concept of a *quality* continuum with comments regarding the appropriateness of particular kinds of online instruction for specific learning goals. For example, if the learning goal is mastery of basic knowledge and skills, then tutorials and drills may be the best instructional design option (ID-1, 18-05-2005). However, if the learning goal is to promote the translation of theory into practice, then a forum may be the best option (ID-2, 18-05-2005; ID-8, 05-08-2005). In short, these participants argued the continuum should have a descriptive rather than evaluative tone.

All instructional design participants reported examples of an educative process through project history stories, which described faculty members who experienced developmental phases, where their perceptions of quality online learning experiences for students changed over time.

Instructional Designer Factors

Just as faculty members' perceptions of TEL project developments differ, so do those of individual instructional designers. Participants reported a series of seven instructional designer factors, which may impact development projects. Individual designers' perceived level of responsibility for becoming an agent of change; pedagogical stance; degree of flexibility and tolerance for ambiguity; perceived personal status and the status of others in the development team; breadth and depth of knowledge, skill, and experience; competing responsibilities; and perception of a quality project were each identified as influential instructional design factors.

Individual designers' perceived level of responsibility for becoming an agent of change ranged from the ideal to the practical. One participant reported that it is "the responsibility of the instructional designer to push the pedagogy as wide and as deep as possible" (ID-8, 05-08-2005), thus affecting change in the development of online learning environments. Another participant qualified the designer's level of responsibility to affect change as a judicial assessment of faculty members' positions of "where they are and what they want" (ID-4, 18-05-2005) as an indicator of how much change would be accepted. A third participant qualified the designers' level of responsibility in relation to extenuating circumstances: "Sometimes it is a time thing. We just don't have the time to do anything else. If deadlines get pushed back, then you just say to the SME, "Right, just get me the content. We'll just go for it" (ID-5, 18-05-2005).

In addition, a participant noted "other times, you see the potential once you've walked into the course" (ID-4, 18-05-2005), but the project parameters and budget have already been defined; therefore, the designer's ability to act as a change agent is very limited. One designer felt that even when extenuating circumstances created problems that inhibited her ability to act as a change agent, she felt responsible for disappointing outcomes "to an extent" (ID-7, 18-05-2005).

A second instructional designer factor, pedagogical stance, was described in detail. Participants reported a range of pedagogical stances from self-referential to theoretical, to discipline-related learning styles, and finally philosophical positions. One participant measured the relative pedagogical values of independent and collaborative learner activities self-referentially: "I hate group projects, so I wouldn't build that in to my class. I hate it. I hate it myself, so I wouldn't want the students to have to do it" (ID-6,

18-05-2005). Alternatively, two other participants described “collaborative projects” as a quality measure of avenues for “critical” and “higher order” thinking, and “theory into practice” learning experiences (IDs-2 & 4, 18-05-2005).

One participant reported a preference for the extensive use of images to supplement text in learning materials as more valued in the medical sciences because of a disciplinary goal “to teach a way of seeing” because “the skill of observation may be more important” in medical disciplines (ID-2, 18-05-2005). Another participant posited that as a result of “the [pedagogical] approach and also the outcomes” in “three nursing courses… [there was] very little call for any kind of overt audio, video, multimedia” (ID-4, 18-05-2005).

Two participants acknowledged having a constructivist philosophical approach to instructional design. One participant argued that from the perspective of a designer who most comfortably takes a “social constructivist pedagogical” stance, he felt that his evaluation strategies “might require more care and attention” (ID-8, 05-08-2005). On the other hand, he posited that a designer who chose a more cognitivist stance might feel that “a cognitive learning outcome is, maybe, cleaner” (ID-8, 05-08-2005). He suggested that if a designer were to choose a more cognitive pedagogical stance, the designer could “have a sense that because [evaluative tools] can measure [learner performances] in a more numerical way,” the designer may feel more confident with results because of the rationality of evidence:

> Here are the learning objectives and here is what the students went through, and [their learning tasks] are tied to the learning objectives, and we have the assignment, which is tied back to the learning objectives. You

> know, so they do this assignment and we have a rubric for evaluating that, and everybody's happy. (ID-8, 05-08-2005)

That said, this designer suggested, "We [designers tend to] think that a constructivist learning environment is somehow superior to a traditional [cognitive] one. Who says so?" (ID-8, 05-08-2005). Another designer argued, "I am a constructivist. I will tell you right off the top. Immediately, that means I am interested in authentic, real world learning," and in my instructional designs, I seek opportunities for learners to "get [to] higher level discussions" that lead to "critical thinking and analysis" (ID-4, 05-08-2005). As a result of the range of pedagogical positions instructional designers bring to the field of social negotiations for a CMLT project, and variant levels of respect for discipline-specific accepted teaching styles, as well as individual instructional designer's levels of fidelity to their personal teaching philosophies, pedagogical stance becomes one of the most significant factors in CMLT project development.

So, what happened when the pedagogical stances of the instructional designer and the SME faculty member collided? Variant levels of individual instructional designers' personal flexibilities, tolerance for ambiguity, and negotiation skills came into play. Instructional design participants spoke of their role as including "bringing ideas," getting "a sense of where people want to go" (ID-4, 18-05-2005), talking with faculty members "and over time … convincing them that we might need to think about new approaches" (ID-8, 05-08-2005), negotiating a shared "language" (ID-6, 18-05-2005), looking for opportunities to "use media … for its full value" (ID-3, 18-05-2005), and sorting out "power issues" (ID-5, 18-05-2005). It is the designer's role to "ask the fundamental question, 'What is it we want our learners to know?' (ID-4, 18-05-2005), to assess,

suggest, provide "good examples" (ID-8, 05-08-2005) and negotiate a pedagogical approach that meets learner needs. It is sometimes also the designer's role to dispel a faculty member's initial "reticence" to consider changes to pedagogical practice that provide better electronically mediated learning environments (ID-8, 05-08-2005). Therefore, variant levels of individual instructional designers' personal flexibilities, tolerance for ambiguity, and negotiation skills have a significant impact on project development.

As in any process of negotiation, individuals' perceptions of their own and others' status within a project becomes an important factor. Just as faculty members' perceptions of status vary, so do those of instructional designers. Six of eight participants in this study agreed that sorting through political and personal status issues involved power. A variety of power stances were taken. One participant referred to "establishing" the roles … of all the players" (ID-6, 18-05-2005); another referred to accepting the fact that "the philosophical bias of the instructor actually drives the instructional design" (ID-4, 18-05-2005). This participant acknowledged the need to assess a faculty member's position before she "builds the vision of the design" (ID-8, 05-08-2005). A third participant made a distinction between parts of project development in which she often felt she had no influence and a "part that I have some influence over" (ID-7, 18-05-2005). A fourth participant spoke of a process where he "talked to" faculty members "over time and kind of convinced them" to consider new ideas (ID-8, 05-08-2005). The range of emotive differences inferred by diction: "establish," "build," "influence," and "convince" infer a range of personal status perceptions. Given that six of eight designers reported status

perceptions among team members as significant, it seems appropriate to include instructional designers' status perceptions as a factor in project development.

A fifth factor, the individual instructional designer's breadth and depth of skill and experience in CMLT development, was also discussed. Participants reported a significant difference between a designer who has years of experience guiding faculty members through developmental phases and a novice designer. In the case of a novice designer, one participant noted that "there really needs to be some adjusting done" to project expectations (ID-8, 05-08-2005).

Competing responsibilities were noted as a sixth factor, which influences instructional designers' roles in individual projects. Two participants in this study reported simultaneously having the responsibility for both supplying content and designing the learning environment in which that content would be housed. Both of these participants also reported simultaneously having to manage projects and cope with competing pressures of "fighting" for tenure (IDs- 4 & 6, 18-05-2005). One participant noted that project problems had emerged while she was "on sabbatical" (ID-5, 18-05-2005), so she had to struggle to resolve entrenched issues when she returned. Seven of eight participants in this study held faculty positions, and therefore, had to undertake community service, research, and publishing activities in order to fulfill their full range of academic duties. The eighth participant worked within a cost-recovery environment; and therefore, needed to balance time commitments among internal and external projects.

The seventh and final instructional designer factor, on which participants reached consensus, was the existence of individual differences in perceptions of a quality project. One designer argued that humanities and education courses were [too] text-based;

whereas, health sciences projects included activities that were more visual and "interactive than humanities (ID-2, 18-05-2005)" A designer with a similar set of project experiences countered, "Arts and education, and funny enough, nursing, tend to focus on critical thinking and analysis, and sort of theory into practice," and therefore, use text-based materials effectively to promote high order thinking (ID-4, 18-05-2005). A third designer, suggested, we "build tutorials, drills, games, simulations. Most of what we build, whether it has images or not, is a tutorial" (ID-1, 18-05-2005). A fourth designer added, regardless of the types of learning activities, attention must be paid to "support" for learners (ID-5, 18-05-2005). Another argued that "good quality design, layout and imaging, so that [a project] has a professional feel" indicated quality (ID-3, 18-05-2005). While the designers held variant positions on the criteria for a quality project, all agreed that personal perceptions of quality played an important role in the pace of project completion.

Media Producer Factors

A third type of contribution to a CMLT project developments is media production. Media producers, like instructional designers and faculty subject matter experts, are involved in negotiating the scope, sequence, and design of their work. Instructional design participants reported a series of five media producer factors, which may have an impact on development projects.

The first factor reported was the need for consensus on expectations for media production within individual courses. One participant noted "ninety nine per cent of the projects that actually come to you with a vision in terms of the creation of the media" have been written, budgeted, and approved without the involvement of either an

instructional designer or a media producer (ID-4, 18-05-2005). The result created tensions among team members because instructional designers wanted to first focus on negotiating an appropriate pedagogical model, which in turn would be used define media requirements to support the model. Therefore, designers perceived an early emphasis on defining media deliverables as distracting from the initial task at hand. Alternatively, media producers tended to perceive projects through the lens of finding where media "can be beneficial," then create "blue-sky" scenarios (ID-3, 18-05-2005). The differing perspectives have resulted in "issues between the various partners," including debates about "why would you want that much" of a development budget used to support media production (ID-3, 18-05-2005). Of course, media producers' perceptions of their decision-making authority, as well as others' perceptions of the status of the producers' roles within project teams, influenced how choices were made.

Similar debates arose around the appropriate ratio of online and offline components within TEL projects, as well as if and/or how many televised elements were required. The range included project partners who advocated for fully televised courses (ID-4, 18-05-2005), "blended online and televised courses" (ID-4, 18-05-2005), and "courses that wrap around a textbook and are totally print-based, with just online discussions to the full online course with twenty-five pieces of multimedia" (ID-5, 18-05-2005). Within these debates, instructional designers again stressed the importance of focusing on the learner needs and the learning outcomes as a prior consideration to defining technological delivery options.

A third debate in the area of media and information technology production involved quality considerations. In the construction of interactive elements designed to

engage learners, interactive activities range from “very cut and dried” tutorials, simple interactions: “you do this and you do that, and you click here and you solve this little puzzle, and you get a grade” to “interactive videos,” “online virtual games,” or Web-based small and large group collaborative projects designed to collect and analyze date that address “real world” problems (ID-8, 05-08-2005). Participants reported that quality assurance debates among team members (faculty, ID, and media producer) often hinged on the issue of whether or not quality should be measured according the richness of the learning experience, or the sophistication of the media and information technology components themselves (ID-8, 05-08-2005; IDs-1 & 3, 18-05-2005).

The fourth and fifth media production considerations were interrelated. Budget and timeline concerns were reported as a constant factor in determining not only quality in TEL projects, but also as contributing to heightened tension levels among team members:

> Sometimes you will get wildly marvelous funding because the faculty member will have this really wonderful idea to try and do something sort of off-the-wall and interesting. Other times, you see the potential once you’ve walked into the course, but [the project budget includes] three hundred dollars for media. Or three hundred dollars for audio/video, which makes [the media producers] ability to be part of that difficult to say the least. And the timing is often tied to the funding as well, so if you’re going to work on a big multimedia project, you need a year. If you are going to work on a small, tight, text-based interactive, reflective course, it takes

> less time to do that and still get the result at the other end. (ID-4, 18-05-2005)

Confounding Factors

In addition to faculty/subject matter expert (SME), instructional designer, and media producer variables, the instructional design focus group identified four external "confounding factors" that can influence the successful completion of TEL projects. These factors are considered to be external because they were outside the mandate of the projects, and therefore, often many, if not all, team members could control or mediate their influence.

The first external confounding factor was the introduction of curriculum development or renewal into a CMLT development project. While curriculum development or renewal was reported as a motivator for faculty involvement in TEL-sponsored CMLT projects, the expansion of timelines to accommodate content development impeded instructional designers' and media developers' ability to meet project deadlines. As funding for TEL projects did not support curriculum development or renewal activities, the instructional designers and media developers reported delays that were difficult to justify. All instructional design participants reported experiences of tension between project deliverable deadlines and the pace of content creation.

The second confounding factor was the number of team members. One participant stated when he is "working with a single SME, the probability of the course being done on time… is higher than if [he is working with] two or three or five SMEs" (ID-8, 05-08-2005). Further, when there are "four or five SMEs, one instructional designer, [and] three or four or five media people, unless the roles and responsibilities have been clearly

articulated, as we have experienced, that can be very problematic" (ID-8, 05-08-2005). Participants were in consensus that clearly defined roles and responsibilities were necessary for all project teams, but especially critical in larger teams. Related complexities arose when projects involved multiple departments or multiple institutions. Two participants reported that, "it more difficult when you're having to deal with many different departments" (ID-1, 18-05-2005), or "multi-institutional projects" (ID-7, 18-05-2005). Common difficulties in these kinds of projects involve coordinating cooperative and collaborative work and ensuring a consistent leadership approach.

A third confounding factor was the number of changes in team membership. Participants reported project delays and difficulties when team members were "pulled away," someone "else assigned," and the renegotiation of shared team goals required (IDs-1 & 7, 18-05-2005). Associated factors were changes in individual degrees of commitment to project completion, which in turn, altered or damaged team dynamics. External circumstances, such as workload changes or a sabbatical leave, were identified as factors that can alter individual degrees of commitment to development projects, and in turn, affect team dynamics.

Finally, a particular concern regarding team dynamics involved projects where faculty subject matter experts and instructional designers experienced persistent differences in project goals. Instructional designers reported a sense of responsibility "to push the pedagogy" (ID-8, 05-08-2005), ensure "learning outcomes" are articulated (ID-1, 18-05-2005), to "think about the complexity of an assignment and the complexity of how you evaluate that" (ID-8, 05-08-2005). Whereas, faculty subject matter experts sometimes perceive development projects as an opportunity to solve problems such as,

"We don't have a textbook and I am going to write one" (ID-7, 18-05-2005), or the department owns a collection of "photographs and pictures" and we are going to digitize them (ID-5, 18-05-2005). Resolving disparate views of the basic goal of projects is frequently a "fairly hard sell and one that [instructional designers need] to navigate gently and politically" (ID-8, 05-08-2005).

CMLT Project Development as a Process of Social Negotiation

The "navigation" process is represented here in a model of stages of project development. This model is a distillation of the reported experiences of instructional designers. Instructional design participants in this study have reviewed the model and affirmed its authenticity in depicting a common life-cycle of CMLT development projects.

At the outset of a new development project, a social field of negotiation opens among faculty subject matter experts, instructional designers, and media producers. This social field is often marked by dissonance as a result ill-defined roles and responsibilities, which in turn, contribute to high levels of ambiguity. When the team members have no previous professional connections, individual team members experience a sense of low social capital.

See *Figure 8* for an illustration of the natural beginning point for a CMLT project. Please note that while *Figure 8* spatially represents the roles as equal and distinct, the instructional designers unanimously agreed that role responsibilities are rarely equal or distinct. For example, in a given project, the role of the instructional designer could include some content development; and therefore, blur the line between faculty and design responsibilities. In another project a media producer might be involved in the

instructional design of a media component. Each project becomes unique in the attribution of range of role responsibilities delegated to individual team members.

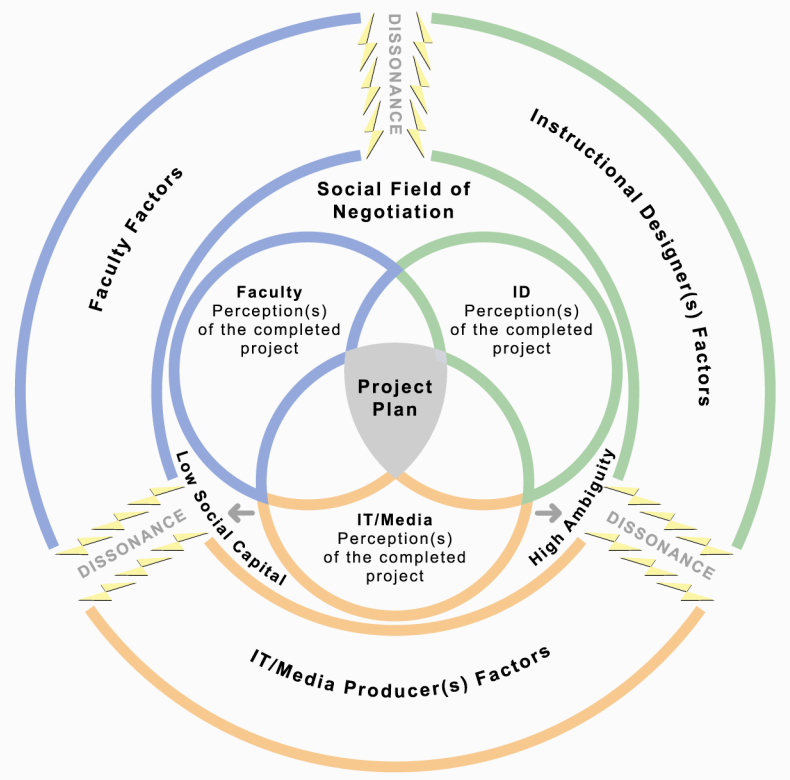


Figure 8. Illustration of a CMLT project beginning point

At the beginning point, team members enter a process of social negotiation. When negotiations go well, initial project plans are collaboratively analyzed to determined scope and goals, learner needs and intended learning outcomes, instructional strategies and evaluation techniques. Clear communication among team members is critical, so that roles and responsibilities can be articulated. At this stage, a project vision is negotiated and a blueprint is constructed. Accumulatively, these activities reduce ambiguity and increase social capital. Increased social capital contributes to increased commitment to

the project and reciprocity of efforts among team members. See *Figure 9* for an illustration of a project beginning to mature during the negotiation process.

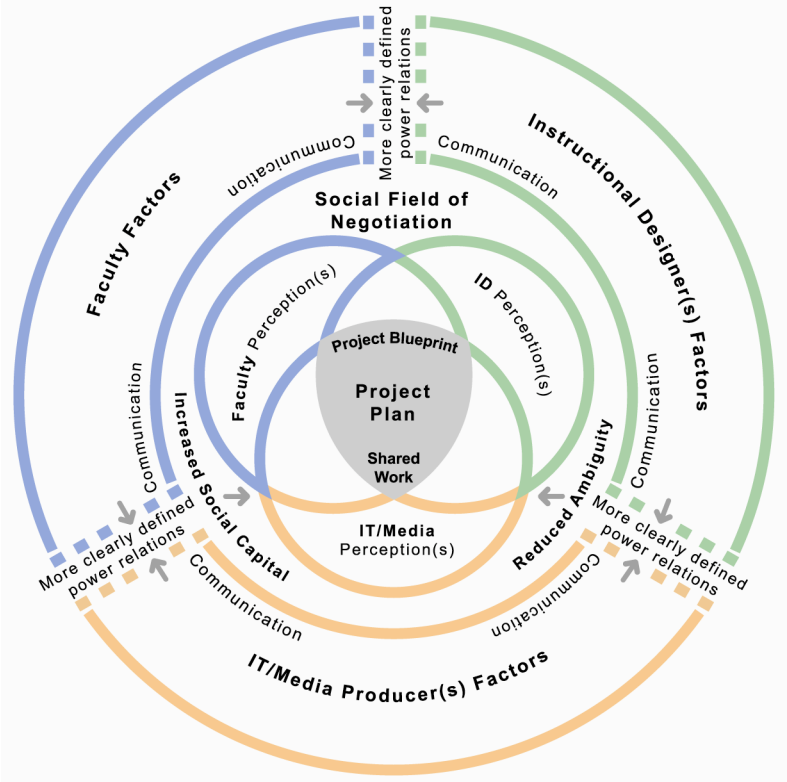


Figure 9. Illustration of a project maturing during the negotiation process completion

When a project moves toward successful completion, clear, shared purposes lead to enacted roles and responsibilities. As project artifacts are constructed, a shared sense of accomplishment among team members contributes to increased social capital, which in turn, promotes strong individual levels of commitment to project successful completion. See *Figure 10* for an illustration of a project moving toward successful completion. Employing the three stages of project development as a framework for analysis, I hypothesized a strategy for purposeful sampling. This strategy involved selecting information rich projects on the basis of exploring project histories to determine

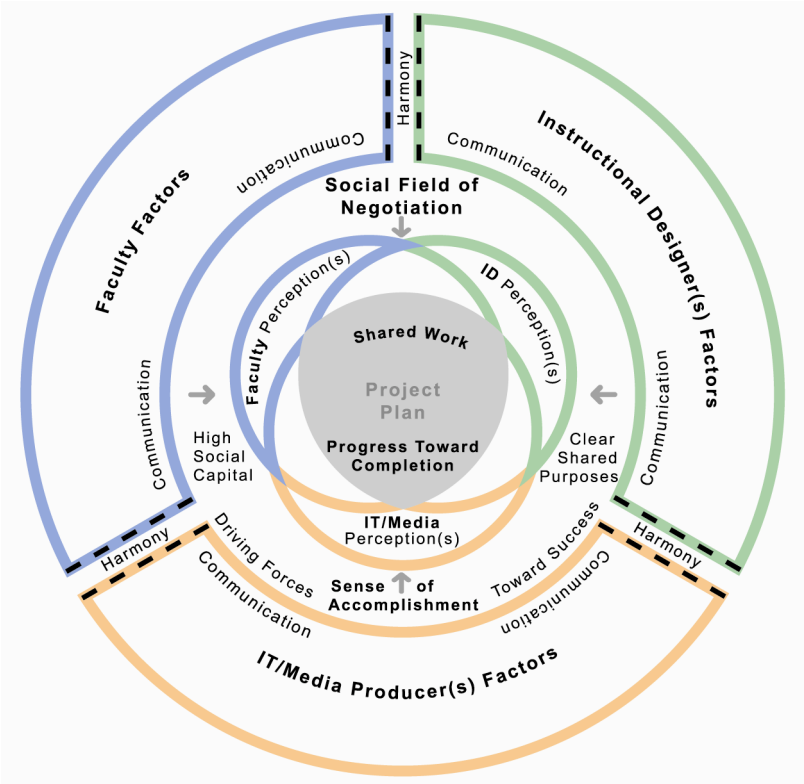


Figure 10. Illustration of a project moving toward successful completion

if initial tensions along the borders of project roles, i.e., tensions between the designer and the faculty member, tensions between the designer and media producers, or tensions between the faculty member and media producers were resolved or were persistent in restraining project completion.

In addition, I determined it would be useful to select at least two projects where confounding factors created dissonance or tension. I determined that if projects could be identified where an initial tension posed a challenge to successful completion, then comparisons could be made between projects where initial challenges were overcome and

where initial challenges persisted. This approach provided the basis for purposeful sampling.

See *Figure 11* for a representation of the bases for purposeful sampling of projects.

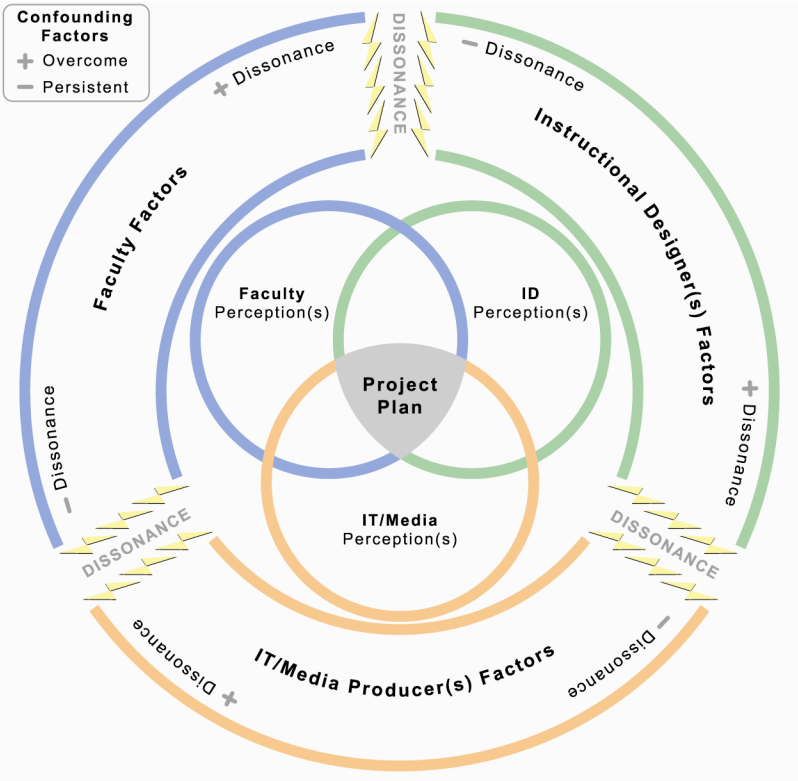


Figure 11. Bases for purposeful sampling of projects

At the outset of this study, the research plan held that the next step would be to conduct a project documentation review. However, as the data were analyzed, I realized I needed process information, rather than project-type information in order to proceed with the study. There were no public documents that described the process of project development.

I returned to my committee and sought permission to adapt the program of research to these emergent circumstances. Specifically, I asked permission to return to the instructional design focus group participants and extend the semi-structured interview questions to include a request to participants to use the model of their experiences as the basis for identifying potential participants for faculty interviews. Permission was granted.

I interviewed each of the focus group participants. I took field notes during the interviews and asked participants to read my notes. Participants were given the opportunity to revise and remove content from the field notes. All participants approved the field notes at the end of the interviews.

Data from the field notes identified fifteen potentially information-rich projects. I invited fifteen faculty members and one graduate student who had acted as a subject-matter expert in a project to participate the faculty interview stage of my study. Seven faculty members and one graduate student agreed to participate. The findings from this stage of the study have been reported in Chapter 5.

CHAPTER FIVE:

PRESENTATION AND DISCUSSION OF FACULTY MEMBERS' DATA

In this chapter, the results of a series of eight interviews with seven faculty members and one graduate student are reported. All participants were subject matter experts (SMEs) in TEL-sponsored CMLT projects. In each of the eight interviews, a faculty member who had led a project in the role of a SME was asked to describe his or her motivations for becoming involved in a TEL-sponsored CMLT project, to tell their stories about that involvement, to identify the enabling and restricting influences on project success from a personal level, the departmental level, and the institutional level, and finally, to add comments about the TEL-sponsored CMLT project development process that study questions had not prompted.

Participants and Their Contexts

The eight subject matter expert (SME) faculty participants in this study represent the development efforts of TEL-sponsored CMLT projects in eight of the thirteen colleges at this university. Three participants led TEL-sponsored CMLT development teams in health science disciplines. Three participants led TEL development teams in the College of Arts and Science. Participants from the College of Arts and Science each belonged to different departments. One participant from the College of Arts and Science led an inter-disciplinary development team that included faculty members from three other colleges. One participant led two TEL development projects in the College of Education.

SME participants' relative status within the university ranged from the graduate student level to assistant, associate, and full professor ranks. One participant was a medical resident (graduate student) pursuing specialized graduate education. Two assistant professor participants

were in the process of earning tenure. Two participants were associate professors. Three participants were full professors and department heads at the time of their involvement in TEL-sponsored CMLT development teams. It was believed that the breadth of disciplinary and career contexts of participants well represented the range of career contexts within this university.

Phase I Data Analysis – The Narratives

I condensed interview transcripts into narrative form. The result is a series of stories that reveal personal experiences and philosophies, epiphanies and transformations, frustrations and visions for educational change. Therefore, these stories are best first reported in as close to a verbatim account of the transcripts as can be accomplished in limited space. My comments are kept to a minimum in order to allow the insights and the emotions of the interviewees to predominate.

Researcher's Role

In the role of instructional designer for several of the TEL-sponsored CMLT development project teams, I acknowledge my stance as a complete-member researcher within the life space of three participants. Data were also collected from faculty members whose TEL-sponsored CMLT development teams took place at my home university, but in which I had no personal involvement. Therefore, the findings of this stage of the study have been reported in two categories: narratives (1-3) in which I was a complete member, and narratives (4-8) in which I was an aware observer.

Narratives 1 – 3: Researcher as Complete Member

In three of the eight reported narratives I was a complete-member researcher. In two of the above three projects, I was involved in design and development activities with the

interviewee for three years. I was involved in two projects over the course of two years with the third interviewee.

Narrative #1: Integrating CMLTs into classroom instruction, professional practice, and continuing dental education. The College of Dentistry described in this study enrolls 28 students in each of the four years of an undergraduate program. Pre-service dentistry students are engaged in clinical practice as part of their program. Clinical practice is supervised by faculty. In addition, faculty members collaborate with the instructors of a dental therapy program at another university and instructors in dental hygiene and dental assisting programs at a technical institute, and deliver continuing education seminars to practicing dentists.

The TEL dental education project had a modest beginning. The initial intent was to take four continuing education presentations from a past conference, "jazz [them] up a little bit" (FM-1, 13-06-2006) and make them available to practitioners with access through the College Website. The goal was to provide practicing dentists in remote communities with easier access to continuing education credits. For a variety of personal and professional reasons, three of the four faculty members involved in this project withdrew. This is the story of the faculty member who remained.

> It started in a very simplistic way in that I was aware that there were people…who were doing more interesting teaching, using more interesting teaching technologies than the standard chalkboard approach to delivering a standard lecture. I had gotten a bit bored with my role as a teacher in that way. When [a colleague] approached me to say that he was aware that I had been involved in a continuing education weekend, "Could we possibly get my talk, jazz it up a little bit with some new technologies, and put that as a learning piece for continuing

> education?" So that is how I was innocently drawn into this web of using technology. (FM-1, 13-06-2006)

Work began on designing and developing the "jazzed-up" presentation. In the process of doing that work, the faculty member and instructional designer discussed learning theory, pedagogical options and approaches more readily available in electronic learning environments, and the specific learning needs of various groups of learners.

> My work was really to address [issues] dentists, [to tell them], "You can do this more reliably. There are things to which you need to pay attention." And [then I realized, this is] not just for dentists who are practicing, but it [could be] a wonderful aid to students in the program, who can learn the fundamentals and the things that are important, right from square one. It then grew because we realized that this isn't just a continuing education piece. This is a student education piece. And then, of course, we began to realize that there are other things we can do. We can put more of the curriculum and the operative teaching program into this vehicle. So then we started looking at what we are doing in Year One, and then Year Two, and then Year Three. It grew like topsy after that. It was not anything I planned. (FM-1, 13-06-2006)

The project eventually evolved to include Year Four curriculum, a series of interactive CD ROMs designed for senior dentistry students and practicing dentists, as well as an inter-institutional and inter-professional collaboration to develop learning resources for dental therapists, dental hygienists, and dental assistants. Each expansion of the scope of the project necessitated writing new funding proposals and including a larger number of development team members. A great deal of time and effort was needed to keep the project moving toward

completion. The motivation for devoting so much time and effort was key to sustaining that momentum. That motivation encompassed increased educational effectiveness and improvement in dental practice across the dental professions.

> I felt that there was something lacking in the standard approach, something lacking in the eyes of the students. A sort of dullness. You see them so bright and alert when they first come into dental school. So keen. As we get towards the end of the first year, … you see that fire lost. I think that that is one of the greatest disasters of the educational system. I mourn the loss of that fire. I am not sure that even with all of the technology we have that we have completely found a way of capturing that back again…. Anything I can do to make that better—my efforts have been pathetic over the years—so bring on anything that we can do to keep that fire alive. (FM-1, 13-06-2006)

What had begun as "a simple concept" of transforming "a talk on how to do posterior composite restorations" into a Web-based presentation for continuing education credits, began to grow into a complete program for curricular renewal, designed to promote best practices in "the cutting edge of dentistry":

> There are many people out there doing posterior composite restorations because patients want them. They are white. They look tooth-colored. They give a sense of wholeness back to the person; whereas, when you have a chunk of silver or gold in your mouth, you feel as though you have a prosthetic appliance. You have got a piece of something artificial stuck in your body. Whereas, these restorations have the promise that you almost look as if you are whole again. The damage that was done has been restored. You can understand the attractiveness of that and the

> selling point it has for dentists…. There is lots of money to be made doing them because if you are perceived as doing something cosmetic these days—whether it is a toothpaste, a whitening toothpaste, that may nothing of any value in it, but because it has the term, whitening in it, people will rush to buy it. So you end up getting dentists delivering a product into an eager marketplace without the skills and the desire to take due attention to do what is necessary to do these well. As a consequence, you get a lot of failures. The failures become expensive, in terms of sore teeth and failed restorative work, dissatisfaction and disillusionment. [Aligning and improving dental education across professions] doesn't matter just for the sake of itself. It matters because we are talking about the clinical care of the patients. (FM-1, 13-06-2006)

Even with this deep commitment to ensuring the success of the project, the faculty member involved met a series of challenges, many of which resulted in delays. One important challenge was coping with competing responsibilities and still finding the time to do TEL development work.

> My world is a complicated, busy place with many pressures. The pressures of the job I have, where I am responding to the clinical needs of patients and students. So the time to go into learning theory…. You realize that as educators at the university level very few of us, and I am speaking in general terms, but very few of us have the time to delve into what is known about how best to teach, all of the modern methods of teaching. I had trouble even with some of the words and the concepts because you're looking at a whole educational substructure, which you could end up taking a degree in education. It is a specialty, as is dentistry. It is a

> specialized area of knowledge. So how can somebody like myself, who is very preoccupied with administering a complex teaching program, and who desperately wants to make it more meaningful to the students, [find the time] because it matters? (FM-1, 13-06-2006)

In addition to teaching and clinical work, the faculty member also had to manage to meet the research expectations of the University:

> When I first came into dentistry, I had a PhD in science. I tried to climb the academic tree through doing science and research. I got very frustrated in that we are a very small university. In the dental college, we are even smaller. Doing dental research just doesn't have a lot of prominence. If you went around with a little tin to collect money for dental research, you would get the bum's rush pretty quick. Nobody is really interested in dental research. There is not a lot of funding there. However, it is interesting that a dental researcher could come up with a cure for cancer or a cure for something major just as easily as a researcher in any other area, but nobody gave a toss about what dentistry was doing.
>
> Now I am back teaching a clinical subject, where I have a lot of responsibility, trying to make sure that students have a proper approach to the care of patients, both ethically and technically. That is why education is so important to me. I have a broad perspective across science, and I care very much for science, so I am not trying to run down research. (FM-1, 13-06-2006)

Tension between teaching and research responsibilities was a seemingly ubiquitous challenge for faculty members. "Every research university can point with pride to the able teachers within its ranks, but it is in research grants, books, articles, papers, and citations that

every university defines its true worth" (Strum Kenny, et al., 1998, p.7). Shifting the emphasis toward improved teaching is a career goal for the faculty member involved in the Dentistry TEL project.

> I am relatively late in my career, but I would like to think that younger university professors who come in to the program, that education and teaching skill will be a bigger component of what is important for their career promotion and what we do. There has been a tremendous emphasis over the past years on bench-top research and having to have big CIHR grants and stuff like that. I have often felt that this has detracted from what we are really doing, which is to be quality educators. There is a lot of rubbish written about how critical it is that we are at the cutting edge of research for teaching. Good teachers have to be at the cutting edge of research. I think that is hogwash. Yes, you have a sharp mind, but you do not have to have a multi-million dollar CIHR grant just to be a good teacher in the classroom. There are many good teachers in the classroom who are generalists, who have little interest in doing that sort of thing, but they have some very important things to say to students. There has been an unfortunate emphasis, perhaps an over-emphasis, on the importance of research and an under-emphasis on the importance of education and how we educate—what we do in the classroom. When students are paying the sort of tuition money that they are paying, they deserve good educators. They deserve educators who know something about the education process. (FM-1, 13-06-2006)

Support for TEL dentistry project included the assignment of an instructional designer, educational technologists, multi-media producers, Web programmers, editors, and a copyright

officer to support the faculty member. The faculty member acknowledged the need for these specialists, and expressed concern that this level of support may be being eroded by organizational change.

> It is not about me as an educator and how much I know. It's more about what the student learns during his or her journey through this college and what we can do to help them. I am just a cog in the wheel, but there is no way that I can take an educational program. It would be nice. There are educational pieces I can learn, but I am still looking to specialist people… to help me in this process, to structure what I do, and improve it.
>
> One has a sense of the institutional changes that have been occurring both within the Extension Division, and now I understand, in [the Division of Media and Technology] DMT, might provide barriers in terms of before we get the work completed, we may lose the institutional resources we need. I worry about that. (FM-1, 13-06-2006)

A second concern the faculty member expressed, touched on the issue of lack of resources for maintenance, up-dates, and revisions to the project after its completion.

> The other issue that concerns me is that it is a living piece of work that we are doing. Everything that we are doing will go out-of-date very rapidly. How will it be maintained? To some extent, we are creating a stick to beat ourselves because the demands that are going to be on the system for improving and constantly upgrading and taking it to the next generation will be hard. (FM-1, 13-06-2006)

In spite of the challenges and concerns, the faculty member gratefully acknowledged the support he had received to date: from the TEL program, the College, and the project team members. He reiterated his optimism for the project and his view of its educational value.

> We are teaching people in a technical age to deal with technological things. They are dealt with very nicely by the modern TEL approach because it is good at delivering bits of information in a more exciting and a more adjustable way. The nice thing about it is that is more accessible. You can take it home with you. In the middle of the night, if you have a question about an upcoming project or whatever, you now can access the material.
>
> In the old days of the epidiascope, if you weren't there and you weren't conscious at the time the professor said it or showed it, and managed to scribble it down in your jotter book, that piece of information was lost. You would never see it again; whereas, we have a way now that the students have a way to take all of this information with them, whether it be on a CD ROM, or on the Net, or WebCT.
>
> As far as technological things are concerned, I think TEL is wonderful because it allows us to provide the student with packages of information in convenient and accessible ways. In some sense, replacing lecture time, so they can do a lot more themselves. They are very much capable of doing that. So it allows us then, maybe, to get back into the classroom and because they have maybe begun to master that material – the little technological pieces – that then we can make the leap and start to push them and stretch them in some other ways.
>
> What I would really like to see is the curriculum slimmed down because you can get rid of a lot of the duplication and the excess that we see in our present

> curriculum. Allow the student to do a lot more self-study on these more simple pieces. This is how you do a procedure. You need these gadgets. You do it this way. You don't need a professor to do that. You can do it yourself as long as you have good pictures and a good text. Then you can have a lot of small-group reading. We can give you reading exercises where maybe we can approach some of the more turgid types of readings, and unpack some of that in the classroom, in small groups where there is a very individual, mentorship type process. (FM-1, 13-06-2006)

The faculty member concluded his TEL story with an expression of his hope that the project might affect longer-term educational change across the College of Dentistry:

> I am reasonably late in my career, I am 62. How much further can I push what I do? Probably, I am limited in some sense, but if what we are doing opens up some windows to younger faculty, who can look at this and say, "I can see this as a platform"?
>
> I want to do to allow students in my area to do something special. So if nothing else, however good or pathetic the final products turn out, if they stimulate a desire to do more in this area within the rest of the faculty—so that we can have a more realistic curriculum, so that the students don't get the glazed eyes, and [so] that they are more excited about what they are doing—they we will have achieved something. (FM-1, 13-06-2006)

Deep commitment to dental education within the College, as well as beyond to encompass continuing education for dentists and practitioners across associated dental professions, was the catalyst for the growth of this CMLT project. Modules of instruction have

been piloted in three of four years of the pre-service dentistry program, as well as in a dental therapy program at another institution. Further dissemination to practicing dentists and among associated dental professions has been planned for 2007. An evaluation rubric for these materials has been prepared to garner feedback on their educational effectiveness in each context.

The underpinning tensions of this faculty member's competing responsibilities to conduct research and produce publications, to supervise pre-service dentists in a teaching clinic in order to ensure quality patient care, along with departmental management and committee duties, have persisted as time-management challenges throughout this project. Concerns about the maintenance of current CMLT resources, as well as the sustainability of "second-generation" CMLT resources, have remained unanswered. If these concerns are not addressed in a timely fashion, they may negatively impact the faculty member's goal of encouraging broader adoption of technology enhanced learning within his college.

Narrative #2: Integrating computer-assisted learning into veterinary medical education. The veterinary college described in this study enrolls 78 students in each of the four years of its veterinary education program. Students work in the small and large animal clinics within the teaching hospital as part of their program. Faculty members supervise students' clinical practice. Clinical research is a strong focus of in this collegial setting.

The first TEL-funded equine education CMLT project resulted from the collaboration between a faculty member and a graduate student for the creation of a computer-assisted, self-learning module, and to test the module's educational effectiveness in comparison to the traditional live-animal demonstration teaching method. The TEL development project and the results of the associated research on its effectiveness would become the medical resident, graduate student's Masters' thesis project. This is that graduate student's story.

> I was a graduate student. I had to do a masters' project. I had a few options. One of them was to develop a new technology to teach veterinary medicine. I picked that one.
>
> I thought that what I did was more than I should have done for a project-based Masters of Veterinary Science, but at the end it was worth it. In the beginning, I might not have been happy [about my decision], but now actually I am very happy because it has widened my horizons about how I think about teaching and the whole education process.
>
> [Technology enhanced learning] has not been tried before extensively [in veterinary medical education]. It is a new approach that hasn't been very well studied. There is a lot of need to have it in veterinary medicine because there is lots of demand on teaching animals. [However], in most of the universities, it is not recognized. There is lots of fear about it. (FM-2, 13-07-2006)

Work began on this project a year prior to the project receiving TEL funding. During that year, the graduate student worked quite independently, conducting a literature review, collecting still images and video of the parts of the process of the medical procedure, and "inventing ideas" on how to best use technology in veterinary teaching. Periodically, he checked with his supervisor for feedback on his ideas.

> [My supervisor] was a bit busy. Most of the ideas on the CD are mine. I developed [new content] from scratch. [My supervisor] was very flexible about it. I went to him and said, "I want to do this and I want it done this way." He would say, "Yes, sure." He was very supportive and helpful. He gave me lots of room to invent things. (FM-2, 13-07-2006)

Once this project received TEL funding, an instructional designer, a television crew, a multi-media programmer, a medical illustrator, a graphic artist, and a project manager became part of the development team. The faculty supervisor devoted a great deal of time to team meetings, discussions of pedagogical and technical alternatives, and contributions to the design blueprint for the module. The graduate student acknowledged the value of receiving this additional support.

> When I started I was a veterinarian. I ended up with a little more experience with the computer, but I definitely wouldn't have had enough experience to develop the CD by myself because I would have needed lots of technical help and that was provided. And actually, sometimes good ideas too. As [other team members] got more interested, they actually provided more new ideas. (FM-2, 13-07-2006)

The design blueprint for the module evolved over nearly twenty versions, each one more specific and complex than its predecessor. Interactive exercises, simultaneously presented external and endoscopic video footage of parts of the procedure, and a quiz with automated feedback were added.

As the development phase of the project proceeded, discussions began on the research design for testing the module's effectiveness. The faculty supervisor and the graduate student invited the instructional designer to become part of the graduate student's thesis committee in order to help design the study. The research team soon realized that if a rigorous study was to be undertaken, funding was needed. The graduate student made an application: "At the beginning, there was not much support for the project. I applied for a grant from the Equine Health Research fund, but I was turned down" (FM-2, 13-07-2006).

The team responded by applying for a TEL research grant. That grant application was accepted and funded. Still, there was some skepticism [within the college] about if veterinary educational research was a legitimate basis for a Masters' project for an advanced degree in veterinary medicine. "So many people downplayed it. At the beginning, they didn't expect results" (FM-2, 13-07-2006).

When the CD was complete, the team undertook the study, analyzed the results, and began to disseminate the findings. Preliminary results were presented at a Research Day event on campus. Final results were reported as part of the graduate student's Masters' seminar and defense. The results were positive. Veterinary students who used the CD to learn the steps of the medical procedure were more adept at performing that procedure than those who attended a traditional demonstration.

> [In the beginning,] I was more of a follower of the school that believes you have to have, all of the time, live animals and live demonstrations. After I had done my research, I realized that that is not totally true. Certain parts can be taught with multimedia and the new technologies. At the end [others who had been skeptical], were actually some sort of surprised: kind of impressed. (FM-2, 13-07-2006)

The graduate student received his Masters' degree, and the team went on to publish the results of the experiment in two sets of international, peer-reviewed conference proceedings, in two articles in peer-reviewed journals, and as part of a peer-reviewed book chapter. The three years that the graduate student had invested in TEL project development and research had been a worthwhile endeavor. At the close of the interview, the graduate student commented, "One thing that we didn't talk about was how very well this project and product were accepted by the students. The students gave the most support. They are still using [the CD]" (FM-2, 13-07-2006).

Strong student support for the continuation of TEL development projects has contributed to the expansion of TEL work in the veterinary program. Students have written letters of support for later TEL project proposals. Since the CD described here was produced and tested, two canine-feline medical exercise CDs and a parasitology database have been completed. Websites for teaching medical imaging and surgical techniques and a second TEL equine CD have been undertaken. The development of an electronic diagnostic tool for teaching bovine medicine has begun. This graduate student's TEL development and research work, along with efforts of the project team, and strong student support for the adoption of CMLTs have each contributed to broadening the adoption of the use of technology in teaching in the college.

Narrative #3: Enhancing technological literacy and skill in teacher education: Challenges, surprises, disappointments, moments of anxiety, and a change of perspective. The College of Education described in this study enrolls approximately 1200 undergraduate students per year in a two-year sequential program. In addition, faculty members deliver graduate programs at the masters and doctoral levels, and are involved in local, national, and international research initiatives.

A series of TEL projects by the College were undertaken to meet the goals of providing flexible teaching and learning opportunities, renewing curricula, and engaging pre-service and in-service educators in online learning experiences as an avenue toward achieving increased technological literacy and skill. This is the story of the combined efforts of a tenure-track faculty member and a doctoral student in meeting these goals in TEL-sponsored CMLT development projects for one undergraduate and one graduate course. In this story, I was the doctoral student and the instructional designer.

Work on the TEL development for the graduate course had been underway for a year before this team was formed. There had been two changes in faculty leadership prior to this faculty member's involvement. As a result of changing team membership, work on this project had shifted its focus twice. The newest faculty member assigned to the project was facing a series of challenges balancing classroom-based teaching duties with establishing a program of research. In his third tenure-track year, it "became obvious" to him that he "needed to produce more refereed publications" (FM-3, 19-05-2006).

He needed a new way to make time to balance his competing obligations. As the department could not afford to "buy [him] out of a class," it was suggested that becoming involved in TEL development and delivery "was one way" to buy time and make his schedule more flexible (FM-3, 19-05-2006). He agreed to become involved in the development of the graduate level TEL course. His experience with the first course led to the request that he later take the lead in the development of an undergraduate course. His part of this story of being involved in the TEL projects describes surprises, disappointments, moments of anxiety, and in the end, a change of perspective.

The undergraduate course had many sections and several were frequently taught by sessional lecturers. In an effort to standardize curriculum across sections, a year before the undergraduate TEL project began, a common set of readings and resources had been placed online and made available to all students and lecturers. However, the readings and resources were only intended as support materials for classroom-based learning. There was no pedagogical framework for online learning.

The first surprise in the TEL project was the discovery one of several sections of the undergraduate course was listed in the University Calendar as a completely online course, when

no such course existed. The news came in November. The course delivery date was the following January. The decision was made to provide a fully online course via undertaking an iterative development process, releasing course modules, as they were ready. The faculty member and the doctoral student would share development duties for the course.

The second surprise occurred during the January orientation session for the undergraduate online course. In the first five minutes, we realized that 33 of the 35 students in the course had been mistaken, "They thought they had signed up for a night class. They didn't know that they had signed up for an online course" (FM-3, 19-05-2006).

The faculty member's first disappointment was in the lack of student technological skill, and the resultant high level of student anxiety in taking an online course. One student in the undergraduate course left minutes after learning it was an online course.

> The students' lack of skill and [high levels of] anxiety were a little bit surprising and a bit of disappointment, knowing what I know now about the changing world of teaching and learning and teacher education.
>
> I think it very important to know that our students are leaving with at least one alternative delivery for a class, one technology-based class. To me, in this day and age, it should almost be without question that every person has, especially as educators, one different way of teaching and learning.
>
> Even though sometimes I think that students want not to have this experience, or so they think; hopefully, they [will] reflect back after their masters or bachelors degree, and say, "Yes, I am glad I did that. Now I at least know what people are talking about." (FM-3, 19-05-2006)

The second disappointment in this narrative occurred in the delivery schedule of both the undergraduate and the graduate courses.

> There wasn't really a pilot for either [course]. I think my department did do its best. There seems to be little room for piloting of experiences. It is either you're in or you're out. I really wish in hindsight, with [the undergraduate course] in particular, that we would have had an even smaller group to work with. And really be able to excel in ironing out the bugs. (FM-3, 19-05-2006)

Another surprise for the faculty member was the total amount of time needed to develop and deliver online courses.

> Teaching, all my life has been a high priority, but how much I take on in terms of new ways, new ways that require time and resources, I wish I would have had more time to really look at different ways to do some of the learning activities.
> I think I talk louder than I actually act about the 24 [hours per day] x 7 [days per week time commitment]. I would like to think I can shut my computer off after whatever time I tell my students, "This is when I am available." But there is something in me. I just can't wait to see what is there. And then I think, why did I open this discussion and why am I in it because now I can't leave it. It's like email. Sometimes I get so darn curious to see what's there. I open it up and think oh, by goodness, now they know I have read it.
> That 24 x 7 professor is a concern to me. There is no way that when I teach a course in person, I work on it everyday, but when it is online, I work on it everyday, including Saturdays and Sundays and evenings, just to keep up with it.
> Departmentally, I think I don't think there is a complete understanding about the

> time it takes either at the developmental stages, or once it is developed, at the operational stages, for an online course. It is by far more work to teach online than it is in the traditional way. (FM-3, 19-05-2006)

An unexpected disappointment for this faculty member was a perception that by accepting online teaching duties, he appeared to have less than a full teaching load. Further, the lack of support for technical and administrative supports for up-dating courses after the first offering, and lack of acknowledgement of the time-commitment per learner in all offerings were two additional disappointments.

> Everything seemed to be so cumbersome. Remember when we had to break the two sections into two groups. Every student needed to be taken out manually and put back in manually. Tenure track people shouldn't be doing all of the administrative and technical things. Quite simply, it is far easier to change your course outline and teach in a traditional way in terms of prep work. At least in my experience it is. So for me that part is a big turn off, so I don't have a lot of time to commit to administrative and technical things before the course begins or once the course is running. I wonder what support or plan is in place in this institution or department or the college to support instructors.
>
> I think that the sections remain far too large, both at the pilot and at an operational level. I think that there are ways that you can offer big sections, but the department really has to look at ways to break them into small discussion groups because just like in a grad course, that is where the teaching and learning occurs in that small discussion area. So I think that the sections are still far too big. (FM-3, 19-05-2006)

While this faculty member's experience included a number of challenges and some frustrations, his view of his overall experience in developing and teaching in an online environment remained positive.

> [Initially,] I was very much drawn to traditional ways of teaching just because it was one less thing to learn because I have a lot of teaching experience.
>
> I am always open to alternative ways of reaching learners. As a scholar in higher education, it is not news to know this is already the norm in many graduate-level programs.
>
> I love how when you think that something is impossible to do in an online environment, and then you try it and it works well. I guess, because I am constantly conscious of, "I don't want it to become boring," [I am] constantly on guard for…stimulating the learners in some way. So that stimulates energy for me. We were constantly on the lookout for different ways to engage the learners. To me, that is really, really sound pedagogy, and in some ways, I do things better online. Student anxiety is there. It surprised me and you work with it.
>
> Instructor anxiety keeps the instructor a little more on your toes. At least, I am all of the time; whereas, I am very comfortable in the classroom, all of the time.
>
> You kind of hold your breath that first week. There is nothing there. No postings, no discussion. Wondering, "Oh my gosh, has this has completely flopped? Or [was] the orientation or plenary session one was a complete flop?" Then it starts happening. Then by week two or three, things are racing already, in terms of discussion.

> You look back, and in a very short period of time, the learners are not only engaged with the subject, … they are also very proficient with the technology. I always walk away from these experiences knowing that the learners learned more that just the content of the course; they learned a secondary set of skills that I think that all educators need. (FM-3, 19-05-2006)

This faculty member accepted a new position after the undergraduate pilot was completed. He left the university with a concern about if he could use the work he had done in his new institutional setting. This would not have been a concern had he remained a traditional lecturer. Traditional lecturers own the copyright to their teaching materials (Tallman, 2000). Yet, after all the effort this faculty member had dedicated to successfully adapting classroom-based content to engage learners in an online learning environment, he did not think he could legally take an electronic version of his new teaching materials and strategies to a different institution, "I don't think that there has been a conversation about who owns these courses. Technically, I think the university does" (FM-3, 19-05-2006).

The need to have sufficient time and a flexible schedule to conduct research and produce publications required for achieving tenure led this faculty member into involvement in TEL-sponsored CMLT projects. The faculty member's desire to expand his knowledge and skill through experimenting with new approaches to online teaching, as well as to promote technological literacy among pre-service and in-service teachers, sustained his commitment to a pair of projects that required a great deal more time than he had predicted.

In addition to the unexpected expanded time commitment required for the design, development, and delivery of the CMLT projects, the faculty member had to cope with less than expected technical support for administrative management of the online learning environments, a

lack of opportunity for a pilot phase for the projects, higher than expected enrollments, and higher than expected levels of student anxiety about online learning. He had to manage all of these concerns within a culture where his level of commitment was not always understood or appreciated. His return on investment for managing all of these challenges was undermined by his loss of an opportunity to transfer his achievements to a new institutional setting as a result of this institution's intellectual property policy for TEL development.

Narratives 4 – 8: Researcher as Aware Observer

In five of the eight interviews with faculty subject-matter experts, I was an aware observer. As instructional designers routinely attend instructional design group meetings to discuss process concerns and project progress updates, I was aware of many of the issues discussed in interviews with faculty members in this category.

Narrative #4: Rewards, roles, and relationships: A vignette of mismatches. A faculty member in a professional medical program was asked by the dean to write the content for and develop an online version of a new behavioral science course. The faculty member had previous "experience in online development of courses" at another institution and a "passion for all online learning" (FM-4, 28-03-2006). This story was brief, but provided worthwhile insight into project management challenges.

This faculty member's first challenge was balancing TEL project development work with other competing responsibilities, including a full teaching load:

> My first year here at the university, I was asked in the fall to develop the content of a new online course that was already in the calendar to be offered in the spring of the next year. So I had to write the content, as well as the online instruction in a short timeframe. That was a challenge, but I did it.

> [For tenure purposes,] an article in a published journal is still worth twice as much. Right now I need to be doing research and publishing. I have developed enough courses. I need to work for tenure. [Course development] is just not recognized. (FM-4, 28-03-2006)

In previous experience, the faculty member had learned strategies to overcome common problems in online development projects.

> The pattern that came out at the very beginning was (and this happened every time) establishing what the roles were of all the players. And timelines. And things like that. And I found that that had to be really sorted out in every project. And it really makes a difference whether people have done it before: [the] content [writer] or the instructional designer or the technical person. (FM-4, 28-03-2006)

Even though the faculty member knew ahead of time where problems could arise, the faculty member encountered difficulties in the project.

> The instructional designer did not seem to know [the] role. I had expected [the designer] to have some experience in the organization of online courses. I assumed [the designer] would edit my content; however, [the designer] seemed to want to rewrite some of my instructions to students. [The designer] said [it was necessary] to reformat and retype everything. [This designer] seemed to want to have control and ownership of the project. (FM-4, 28-03-2006)

While the project was successfully completed on time and within budget, the faculty member felt that ongoing difficulties in establishing clear roles and relationships had caused enough difficulty to feel it would have been far easier to complete the content on independently, without the involvement of an instructional designer.

This faculty member's concerns about focusing energies on research and publication requirements for tenure echoed those other narratives. The tension between time commitments for CMLT development and programs of research emerged as a consistent theme in this study.

Narrative #5: Reinventing Native Studies: Implementing curricular, pedagogical, and technical change. The Native Studies Department at the university described in this study provides a required course for a number of undergraduate programs in a variety of colleges on campus, as well as throughout the regional college system in rural and Northern areas of the province.

The Native Studies TEL project began almost by accident. Prior to the project's beginning, a faculty member had been asked to write a textbook for the first year course. Lacking sufficient funding to produce a print-based text, the faculty member—who had "a lucky education," which included a background in multimedia skills, as well as subject matter expertise—decided to produce a less expensive CD ROM. Just as the CD was completed, a colleague discovered that the previous department head had applied for a TEL grant. "He got it and left without really telling anyone about it" (FM-5, 16-05-2006). A year later, the TEL coordinator sent the department "notification that the money was still there" and asked if the department "would like to carry on with the project" (FM-5, 16-05-2006). Two faculty members decided that since they had the money to do the project, and they had new electronic resources for the project on the CD, that they could "reinvent Native Studies completely… [and] do that on the Internet" (FM-5, 16-05-2006). This is their story:

> Using this project, instead of having Native Studies be anthropological (including a lot of history and archeology, and some sociology, a kind of hodge-podge), why don't we reinvent Native Studies to be about issues that we thought were

> important? So it was really a very long process, almost a year of me deciding what Native Studies should be. (FM-5, 16-05-2006)

As well as time spent on curricular research and deliberations, the project required University committee approval. “The incredibly slow moving systems of the university … have really caused a lot of problems in change. But we have been able to stick with it because we have got academic freedom” (FM-5, 16-05-2006).

While academic freedom contributed to the eventual success of this project, that same freedom also complicated the process of reaching one of the project’s major goals: the standardization of first-year course curriculum:

> The department was basically disorganized when I got here. There were 18 sessionals teaching 18 different versions of Native Studies. Each Masters student was teaching from a different academic point of view, according to the department where they got their Masters degree. They had academic freedom and it was a very interesting mix, but when you got to second year, almost every professor had to start over from the beginning because a student who had a first-year professor with an anthropological background knew nothing about the sociological content.
>
> We were trying to pull [the first-year course] into one version of Native Studies for the University and we met with a lot of resistance. Existing lecturers did not accept the new curriculum or the new mode of teaching, so they resisted the change.
>
> The original intent was that all of the sessionals would work with me and become involved in using the course as a textbook, having it as a backup for teaching, and

marking and also running discussion groups online. In terms of the pay and the job, it would have been a slightly different job, but it would actually pay more. This was one of the biggest problems we had. They actually went to Sask. Learning and wanted to get Sask. Learning to stop the project. We had letters from the Minister of Learning. They went to the University. They went to the union. (FM-5, 16-05-2006)

A major task for project leaders was overcoming a perception that curricular and pedagogical change, enabled by technology enhanced learning, was an attempt to eliminate jobs:

We might as well throw a book at them. That was what the union accused us of doing, throwing an electronic book at our students and replacing the teachers.

University support was critical in resolving the staffing crises.

The University is definitely committed to this. I mean we have had to have protection. We have had to have knights in shining armor to continue to let us do what we want to do here.

Departmental support was critical in providing a viable option for staffing.

At the same time all of this was going on, [a colleague] was restarting the graduate program for Native Studies. We now have a little army of graduate students. We have about 50 students who have majored in Native Studies who are on campus. So we have a fairly good number of people we can draw on to become teaching assistants for the Web course. Without that, we would be dead because without that the TEL course would be what everyone does not want—not interactive, non-responsive, all of these bad things. And it wouldn't be a course anyone would really want to take. (FM-5, 16-05-2006)

A third concern in this project was budgeting. How could a small department fund full-scale instructor training for online teaching? "The fact [the provincial] Campus exists, [and] the TEL project money is there [helped resolve the training issue]" (FM-5, 16-05-2006).

Curriculum renewal was accomplished through a process of having 16 sections of two new TEL courses replace 16 of 18 existing classroom-based sections of the original course. In the process, the fiscal challenges of the department were addressed.

> [In the department of] Native Studies, the costs are going down, and the results are going up. In our little part of the world, in Native Studies, this actually worked out very, very well. The result is that now the department is totally committed to having the TEL project on campus and the WebCT courses as the structure for all First Nations, first year courses. We have about 700 students per term who are going through first year Native Studies. (FM-5, 16-05-2006)

The newly standardized curriculum has reshaped the undergraduate Native Studies program: "The result was that Native Studies in the two TEL projects that I have done, starts with things that are happening today and then moves backwards. So it completely reverses the time flow" (FM-5, 16-05-2006).

The implications of "completely reversing the time flow" and focusing curriculum on "issues of today and how people are actually dealing with them" were not only important issues for university-level instruction (FM-5, 16-05-2006). The faculty member also needed to negotiate a reflection of this change in the K-12 educational system in order to ensure that students entering first-year university studies came with relevant prerequisite knowledge:

> I have gone to the high schools and I have talked to them about our curriculum and I have talked to [them] about preparing their students for coming to

> university, and if they want to change their curriculum in such a way that that their students will be ready for university studies, this is what I am teaching. And I have had teachers stand up and argue with me and say, "You have to start with archeology, you have to start with anthropology, and you have to deal with the Fur Trade because that is what we are able to teach [because] that's what we learned." (FM-5, 16-05-2006)

The faculty member also considered the needs of practitioners—across a variety of professions, all of whom take Native Studies courses to prepare themselves for post-university careers—as part of the curricular renewal process:

> They are training themselves to become professional teachers, doctors, lawyers, nurses, and social workers. It doesn't do the social worker in the field on the first day of the job on 20th Street in [our city] or on downtown [in the provincial capital] any good at all to start talking to anyone about the Fur Trade or archeological digs.
>
> I am trying to get students to internalize the Aboriginal culture by attending today's culture rather than externalizing and going to museums. Look at beadwork. Let's say a social worker knows a lot about beadwork. What good does it do for that social worker when he is dealing or she is dealing with a family in crisis? (FM-5, 16-05-2006)

Taking into consideration a broad array of learner needs across the K-12, university, and professional practice, the faculty member refocused the Native Studies curriculum to reflect contemporary Aboriginal culture:

> Well what do we normally expect when we talk about Aboriginal culture? Downtown, they have a powwow. Or if the FSIN is in town and they have a powwow. What do you see there? I call it leather and feathers. Leather and feathers means traditional culture. You have a complete misunderstanding about what Aboriginal culture is if you have only been to a powwow.
>
> I try to get the students to learn the actual situations Aboriginal people are sitting in today. So then you study sociological aspects of urban reserves, treaty rights, and that sort of thing. You try to look at some of the political issues.
>
> The new curriculum also addressed the problem of content redundancy across courses. I was talking with a student yesterday and she was saying that she has studied the Fur Trade in six different classes. In my class, we don't do that. (FM-5, 16-05-2006)

The two new TEL courses were developed in collaboration with an instructional designer and media developers. The courses have been piloted and the results of the pilots reflect the faculty members' enthusiasm about the potential for TEL courses to improve student learning:

> There was a little discussion about how many First Nations groups there are in [this province]. If you go to the Websites, the FSIN claims to represent 84 different groups. If you go the government Website, it says that there are 74 First Nations in this province. If you go to other Websites, you will find different numbers all over the place. So what the students decided to do last term was to go out and actually find out how many First Nations groups there really are. And they did it. They reported it back. It was original research. They didn't just read the facts in the book, and say it is 74 and get the question right on the exam. They

> actually did some research on their own. It wasn't my idea. It just came up in the discussion group. That, I would say, is the major learning situation on the Website. It is not the content I have placed there or the readings I have placed there, but the discussions that the students get involved in, and they actually start to see the issues as something they can actually understand. It is not a set of facts that they have to memorize. It is the freedom of using this new technology that allows that to happen. I cannot do that in a lecture. (FM-5, 16-05-2006)

A second example of technology-enhanced learning resolving a pervasive, sensitive teaching and learning problem emerged from a departmental concern about how to teach on the topic of racism:

> Not anybody I have ever met in Canada is a real racist. I have read about them in the paper, but I have never actually met one. Who was racist from the start? People come to these conclusions to become racist, based on false information or misunderstandings about the relationship between people. We were worried about that in Native Studies. How were we going to teach about racism? So that is what I came up with. Let them look at the problem from both sides. Let them internalize the issues themselves and then deal with them.
>
> I think the TEL project brings out a lot of learning because this happens… without me being an activist. I just give them the straight information. They come to all of the conclusions themselves. I don't try to change their minds. I am just giving them an opportunity. If I had to be in a lecture environment and deal with that, it would be much more difficult because my own biases would be there. It

> would be obvious what I thought. And the students, then, would go along with what I thought if they wanted an A. (FM-5, 16-05-2006)

The success of the Native Studies TEL projects garnered national and international interest:

> We actually offer credit courses at the University of Alberta. They take our course and use it in their program. The remarkable thing about this is that we have had requests from New Zealand, from five universities in New Zealand …from Brazil, Peru, from Costa Rica, and all across Canada. Victoria has put in a request for it. I mean these are people who want to learn about Native issues or Aboriginal issues and want to have it as part of their curriculum. They want to know what we are doing in Canada with this course, and they want to offer it as a credit course in their universities.
>
> I have been invited to several conferences on online education in Europe and especially dealing with cultural issues online. There is a huge interest in this. It is an incredible opportunity to promote the university. (FM-5, 16-05-2006)

While there are numerous opportunities, the process and protocol for taking advantage of these opportunities was problematic. Building external partnerships and negotiating agreements are beyond the purview of individual faculty member's resources, responsibilities, and authority. Centralized liaison personnel, who have the authority to negotiate external agreements, often do not have academic relationships within external communities, and therefore, may not be well-positioned to build partnerships with academic units in other institutions.

Even within the province, coordinating activities among institutions has been hampered by policy issues and organizational change:

> One of the things we wanted to do, and that was reach out to the 23 colleges, [is not going well]. I think that the need for this program in the Northern areas is huge. This course has got to be offered to those people in our outlying communities. Unfortunately, I don't think the University is backing me on this one. They are eliminating the Extension Division. In the off-campus courses, they have decided to promote televised, and not Web courses. (FM-5, 16-05-2006)

Provincial funding formulae have complicated off-campus delivery opportunities. Under the current system, regional colleges are fiscally disadvantaged if they deliver completely Web-based courses.

> [The colleges] are paid so much for the space, so much money for the teacher, and they get so much money for offering the course, so they make about 30 per cent. So when they offer a Web course, there is no structure to pay the College. We don't necessarily need a [college-based] facilitator. We don't necessarily need a lab. If the students are able to access a computer, and the whole course is online, there is no requirement to be anywhere. [Students] can do this from [their] home or from work. So when they offer a Web course, there is no structure to pay the College. [Solving this problem] is my next job. (FM-5, 16-05-2006)

The task of re-inventing Native Studies was marked by a series of organizational tensions, initiated by the TEL-sponsored CMLT projects, but extending far beyond project-based concerns. The need to standardize curriculum and eliminate redundancies for first-year students in the program created tensions between department members' programmatic goals and sessional lecturers. Academic freedom surfaced as an issue on both sides of the conflict. Fear of technology, as an avenue for eliminating jobs, surfaced. Aligning the new curriculum with the

contemporary professional needs of learners created tensions between the department and K-12 teachers, who expressed concerns about their preparedness to adapt prerequisite curricula to support this new development. Efforts to extend the use of the new program to the regional colleges, as well as in other national and international academies, met with difficulties in overcoming internal and external organizational barriers to affecting change.

Against this complex backdrop of tensions, the new Native Studies curriculum, supported by innovative pedagogical and technological approaches to achieving intercultural understanding of contemporary issues in First Nations' communities, emerged as a success that garnered broad interest in adopting its features in universities across the nation and around the world.

Narrative #6: Creating a new online multi-disciplinary professional graduate degree program in a cost-recovery model. A college at the university wanted to take the lead in creating a new multi-disciplinary professional graduate degree in order to take advantage of an opportunity to combine varied sets of local expertise in order to create an innovative professional graduate program in international trade. Prospective students were identified as mid-career professionals, who would need to balance commitments to continued employment with their studies. The opportunity to use online instruction to meet the needs of prospective students arose as a result of the provincial TEL committee expressing an interest in graduate-level programmatic approaches to development projects:

> The government folks on the TEL committees had expressed some interest in developing programs per se as opposed to single, stand-alone courses, especially programs at the graduate level. So I got our committee together and said, "Here is an opportunity, what about it?" Clearly, this was just a natural [match between provincial and university goals]. (FM-6, 18-04-2006)

At the beginning shared goals seemed obvious. The project had to be multi-disciplinary because "the problem of international trade can be examined from a variety of different disciplinary perspectives" (FM-6, 18-04-2006). And there is "a lot of expertise" in various areas on campus, which are capable of responding to the problem, including the Colleges of Agriculture, Law, Commerce, Arts, and Science:

> For many reasons, the project had to be based on a cost-recovery model. This was the first program of its type: an interdisciplinary, professional program to be cost-recovery that went through the system. People on the [graduate studies and academic council] committees, [as well as college-based contributors] had to get their mind around [dealing with cost-recovery].
>
> This is editorializing, so I guess it is an opinion. I think people are a bit suspicious about cost-recovery. They may not be as positively inclined as you might think. I could be very wrong about this, but the tenor of some of the questions led me to believe that. But now, more and more people are buying into the concept.
>
> There is a strong feeling that this is the people's university and service is to be provided to the community at low cost. In this particular context, we would be serving people some distance away, not largely even citizens of the province, so people should pay. And these are not inexpensive programs. The delivery costs are quite major, so that is another reason we are to be cost-recovery. Cost-recovery programs are becoming more and more popular because of inadequate funding of the university sector. (FM-6, 18-04-2006)

The new multi-disciplinary professional graduate degree TEL development project simultaneously faced the challenges of working within the unfamiliar constraints of a cost-

recovery financial model, while creating a new program with a new curriculum designed for a new group of learners. After researching potential clientele for their new program, the faculty members involved decided that this new group of learners would need online instruction, implementing the use of teaching and learning technologies that many, if not most of the members involved, had not used before. Before they could begin development work, they had to commit to provincial deadlines for completion and hope that their program proposal would be expediently accepted by both the College of Graduate Studies and University Council. This is the project leader's story:

> The first practical challenge the group faced was negotiating the cost of development. That varied from unit to unit, in part because there are different expectations, and different costs involved. Course developers have to be replaced during the time they are bought out. The costs are different in different disciplines. It is more difficult to attract people in Law, for example, who can replace the individuals who are developing courses, and as a result, the costs vary. So that had to all be arranged. (FM-6, 18-04-2006)

A second, and somewhat more daunting challenge, was getting the program approved by the College of Graduate Studies and University Council:

> The program approval process is very wearying. And this isn't only because it is an online program, although that did raise a number of issues with the committee in the College of Graduate Studies, which was tasked with approving it academically, because many of the folks there had concerns or had very little experience with on-line program development.

> A number of issues were raised in that context, which I had to think about, on which we had to consult with others to answer those questions. These questions led to a student-client needs analysis. First, we considered teaching this program on campus, the same way as other programs of its type, [such as] a Masters of Business Administration. In the course of our discussions, we had to consider who the clientele would be. In the Masters of Business Administration, there are a whole bunch of folks in the vicinity or who move in from outside, and take courses here.
>
> We felt the demand for our program would be limited here [and also] in the immediate catchment area [our two adjacent provinces]. We thought [our local and adjacent catchment areas] would provide enough people to offer the program on campus for the first couple of years. For a while, we thought that would be fine. We would develop it here and at some distance in the future, we could consider putting it online because the kind of folks who would take this program would probably be mid-career professionals, who have some experience in the trade sector or in international work generally. People from government, people from the private sector, and as well, and we don't know this yet, but probably the odd student who would want to immerse him or herself in this program at a relatively early time – shortly after graduating from a bachelor's degree. (FM-6, 18-04-2006)

Projecting potential student enrollments in the program led to further consideration of learner needs and geographical considerations:

> [We decided] much of the clientele would be from outside our city. We have firms that do international trade, and of course, in the neighboring provinces, we [see this] as well. [But] if we are talking about mid-career professionals, we are talking about people who might be a little loath to take a whole year out and to do a masters degree. We would [have to] consider putting it on line, in large part because much of the clientele would be at some distance. We would have people in the national capitals. We would have people in the Foreign Service, as well as companies all over the world. (FM-6, 18-04-2006)

Identifying potential learners/clients for this new program led to the realization that a marketing strategy would be needed in order to attract students in disparate locations and multiple occupations:

> The third major concern was "how to go about marketing" the program.
> It is something that during program development we had not spent as much time on as we should have. When we got to the University Council level, we got the question, "So how are you going to market this thing?" Good question.
> Academics are not necessarily very good at that.
> We got together to decide how this was going to work out and one of the members of my team had the very excellent idea that we should work together with a private sector organization involved in trade consulting. We found a private partner, involved in economics and law and in international trade. These folks consult with governments, with international organizations, and occasionally, with private sector organizations on international trade matters. We have two people in that organization with a background in trade and diplomacy.

> They travel to conferences worldwide. They have contact with trade people in governments and what they discovered is that there are quite a number of people working in these areas that don't have the expertise that [our] program is meant to deliver. (FM-6, 18-04-2006)

For faculty members whose previous experiences in graduate education were primarily within a traditional academic setting, becoming familiar with the needs of adult distance learners and designing a strategy to meet those needs took some time:

> It was conceived to be a cohort-based program, in which students would take two courses per term, five courses per year, and [students would finish the program] in two years. [The private partners] pointed out that if people want to do this part-time, and this is the [group of] people were looking at, they may not be able to handle two courses per term. (FM-6, 18-04-2006)

The program plan was adapted to meet the needs of mid-career professionals who need to balance careers, families, and studies: "Hence, we [would] have to be able to develop a stream that allows people to do one course at a time. To make a long story short, given the structure of the program, we have to be sure that people can take it in bits and pieces" (FM-6, 18-04-2006).

Once the cadence of the program was adjusted, a marketing specialist was added to the development team and spent time developing an approach to ensuring the marketing and recruiting efforts would be successful:

> We had to be sure that the visual component, the aesthetic component of the Website [appealed to our intended audience]. And there we have an excellent person doing the job. He has not only been able to do the technical things, but because of his experience, he was able to provide very useful advice. That

> cooperation is working very, very well. Clearly, we have to have [the promotional materials] online before a great deal of marketing is done. Right now, as well we're developing some brochure material that [our private partners] can take with them as they talk to the various clientele. That's working out without a glitch. (FM-6, 18-04-2006)

All of this originally unanticipated background work took time to complete. Agreed upon deadlines for delivery could not be met:

> What we thought would be a year's approval process or less, was actually drawn out to almost two years.
>
> The delivery was postponed for a variety of different reasons. Rather than having the first set of students in 2006, the delivery phase of the program [was set to] begin in the fall of 2007. (FM-6, 18-04-2006)

The cadences of academic lives also played a role in the challenges of meeting external deadlines. Competing responsibilities, including research initiatives that interrupted some faculty members' campus-based teaching, led to difficulties in scheduling planning meetings:

> I guess one of the reasons that this may be the case is because of the people developing the course are academics. They are not always on campus at the same time. Two of the folks, who are key in this initiative, are on leave this year. In developing courses, we found that clearly if it is an overall program, you have to talk to people to make sure that the courses fit seamlessly together without a great deal of overlap, and make sure that the material that is required as a prerequisite is, in fact, undertaken. So far, we have had some difficulty in getting everyone together, in part because folks are gone. This consultation hasn't been done.

> No excuses.
>
> There were some organizational reasons why we couldn't get together. Now, some of the courses can stand by themselves, and so the prerequisite notion doesn't apply. Nevertheless, they are in a similar context, and obviously, developers have to know what has already been covered. Curricular redundancy had to be avoided. People generally have to know exactly what's covered in order not to be too repetitious. This is why the courses are not as far along in development as they might be. (FM-6, 18-04-2006)

Time lines were stretched by the length of the program approval process, necessary adjustments to the original program to meet learner needs, marketing concerns, and faculty availability issues. Nevertheless, development work has begun. The faculty course development team members have been happy with the instructional design collaboration and media development support they received:

> [An instructional designer] is in charge of the development and the liaison between the [media developers] and us. She sits on our committee and so she is aware of what the major developments are. I haven't talked in detail with the [faculty content] developers about how their experiences have been, but I have had no complaints and quite a number of positive comments. (FM-6, 18-04-2006)

The instructional designer has had to manage the development issues, including reporting to the Province on the reasons for delays. While there have been many and varied challenges that have caused delays in bringing this new multi-disciplinary professional graduate degree "to life," most have been surmounted:

> [Individual subject matter experts] are very proficient in their area, [and are] doing their own thing. I wouldn't want to become involved, for example, in the development of a Law course. I know nothing in that area and people are highly motivated. They have taken the initiative and they are working on it. (FM-6, 18-04-2006)

The faculty subject-matter-experts worked on making the online program a success, but they have had to simultaneously cope with a change in leadership, the coordination of the efforts of a large number of program team members, as well as personnel changes within individual course development teams. There was also "a significant leadership change within the institution," and a faculty member "who was a strong advocate for the program, left" (FM-6, 18-04-2006).

There was also a concern about "fair teaching loads," because of the expanded amount of faculty time devoted developing new kinds of learning materials and to learn to teach in a new way to accommodate the online environment (FM-6, 18-04-2006). Within one the disciplinary unit, some "people have been skeptical about online delivery in principle" (FM-7, 18-04-2006). Despite significant challenges, work has proceeded:

> My assumption is always that individuals will take the initiative, and I have of course, asked how things are going because I want to have an overall idea of what is happening. I have to report rigorously to the Dean of the College of Graduate Studies and Research, which is where interdisciplinary graduate programs are housed. (FM-6, 18-04-2006)

Despite the series of programmatic approval issues and project management dilemmas, [that the interdisciplinary graduate] degree encountered, work proceeded, and initial results

suggest that the development teams have worked toward the development of the first four TEL courses for the program:

> Two [faculty members] happen to have some experience in this particular regard, as pioneers of program development, and those are the two who would have the least difficulty in this regard. I have spoken to one other who is developing two courses and he is happy with the kind of support he is getting. He has been working fairly regularly and things are moving along. (FM-6, 18-04-2006)

The faculty members involved in the development of the Masters of International Trade program have met a series of challenges associated with transforming traditional place-based pedagogical practices into distance learning opportunities for mid-career adults. Achieving institutional approval for an interdisciplinary, cost-recovery program offered in the online environment, where the approval-granting committee members had little or no previous experience with most of these elements has been a lengthy process. Working within a large team that has been marked by changes in team membership and team-member availability has impeded progress. Determining learner needs in a distributed environment has been an educative process that led to changes in programmatic planning and marketing strategies. Determining fair compensation for the individual efforts of contributing faculty members in diverse collegial settings has added complexity. Managing some team members' skepticism about the efficacy of online learning, in general, has introduced a further complexity. Despite this formidable range of confounding factors, the program has proceeded.

Narrative #7: The super course experiment: Dealing with large enrollments, striving to standardize curriculum, and managing a monstrous project. The social science department

described in this study enrolls graduate and undergraduate students. Faculty members are involved in a series of research activities.

For the instructors in this social science department, the TEL program provided opportunities to restructure and standardize the curriculum of a first-year course with very large enrollments. Each year the department needed to accommodate four or five sections of 350 students on campus, as well as approximately "eight [smaller] sections distributed at satellite locations" (FM-7, 30-05-2006). Diversity among instructors had led to the fragmentation of content, methods of instruction and evaluation techniques:

> The whole idea was to get one consistent offering, and have the same material and the same method of evaluation, and hopefully, an enriched experience relative to what students were getting on campus. It is often a big problem to have many different instructors, instructing the same course and doing it in an idiosyncratic way because there are certain expectations especially …when students get to the 200-level that they have been exposed to the broad range of … topics and approaches. One of the common problems you run into is that people tend to spend disproportionate amounts of time on material that they might like or be more familiar with. That makes it unbalanced.
>
> Enhancing student learning experiences was also a major goal.
>
> In my view, classes of 350 with one instructor in front of them, going through the material is not a particularly useful experience. [We wanted to] reintroduce weekly tutorials in smaller classes for students. (FM-7, 30-05-2006)

The faculty member who led this project also wanted to use technology to introduce interactive elements of instruction and provide students with more flexible scheduling options.

> We had many plans about how to use the technology. The whole original idea was to set up a series of audio-guided slide shows for each lecture, so that there would be somebody providing a lecture, so that audio stream would guide the visual information on the screen: images and animations. As we developed the idea, it was going to be basically a set lecture. It would be treed or it would be in a hierarchical organization, so that people could start and stop at a certain location or go back to a subtopic or a major topic at their convenience.
>
> Ideally, it was meant for someone to sit down, go through the material as if they were listening to a university lecture. Within the platform, there were lots opportunities to do many other things. One of the important things would have been to be offering quizzes online, and we talked about setting up interactive chat lines, having someone who would be able to immediately respond to email questions, and have a bulletin board where frequently asked questions are posted. (FM-7, 30-05-2006)

In addition to determining instructional activities and evaluation methods for the standardized course, the department also needed to come to agreement on the curriculum.

> We originally met as a group of faculty who were interested in completing the modules for the course. We planned out the course and said we were going to have 17 different modules or topic areas, and what we need to do is develop one of those modules completely in order to see what is involved, and how it works, and use that as a pilot. We were going to shape the future modules based on our experience with the first one.
>
> Initially, there was a “huge amount of support” for the project:

> Everybody thought it was a good idea. The institution thought it was a good idea. It could have been used as a model to try to standardize first-year courses. An associated educational effectiveness research study was discussed. It could have been useful to find out if it was more effective, had the same level of effectiveness, or was less effective. That possibility was there. You always need to know how these things work. It is an empirical question about whether students can get interested in this way of learning. It would have been neat to do that. So we had all of the right ideas. (FM-7, 30-05-2006)

In spite of the initial support and research interest in the project, the team members encountered a number of difficulties, and at the time of this interview, after three years' work on the project, it had been put on hold. This is the story of why that happened:

> The problem is that it never played out. That was the issue. Part of the unraveling of this entire project is probably because I didn't recognize how monstrous this animal was. It is all done in terms of spare time that faculty have. There was some compensation that we worked out in terms of the course and I can't remember. I think that there was some compensation of maybe two half-classes. We calculated the faculty time that would actually be involved in generating this course. It was enormous. Nobody received any money for doing anything. There is really no pay off because what you have to do to do this kind of project is proportion your time differently to do your regular job and then add this on. You have to add it on and reorganize. In terms of our project, it simply didn't get the time that it needed and it needed a lot of time. It needed more time than anybody figured it might need. That is what I mean about these courses being developed on the margins. They

> are being developed not only on a financial margin, but [also] on a time margin. (FM-7, 30-05-2006)

A second difficulty that contributed to project delays was a problem with third-party copyright clearance for images the faculty member wanted to include in the course.

> We ran into immense problems getting any of the images released. It was kind of surprising because the publishers, when we originally approached them, seemed to have no problem whatsoever releasing the images. We basically knew the sources of them. Part of the problem is that a lot of them are older. An image may be done by Alan & Bacon, and who knows who owns Alan & Bacon today? I think that is at least part of the problem. (FM-7, 30-05-2006)

An additional complicating factor was change in team membership. The original instructional designer took a new position and left the project. It took time to hire a new designer.

> There was a lull during that period. In a very large department with lots of graduate programs and lots of graduate students, and a significantly huge undergraduate program, something has got to give. I just got too busy and this was simply not a high priority. It reached the point where it was just going too slow and TEL couldn't wait any longer. So that is as far as we got. We never got to a complete, finished module. (FM-7, 30-05-2006)

The question of course ownership also played a role in the delays and this faculty member's eventual decision to leave the project.

> Part of it now gets back to the copyright issue. TEL wants all authors to sign away not only copyright, but [also] their moral rights. It's a very common thing that is

> happening all over North America, especially with publishers. Moral rights means that they can do anything to the material and still associate the person's name to it even though they have no control over the changes that are made. To me, that is, personally, a huge problem, and may in fact, be responsible for me dragging my heels a bit too. The whole copyright and moral right issue really doesn't sit very well with me at all. It was a contributing factor. It is a real struggle. The more I learn about this, the more I ask, why are we even doing this? It flies in the face of being successful, of successfully mounting the program.
>
> The department would still like to achieve its original goals.
>
> There are people in this department that would like to carry on with this project. Maybe they will. (FM-7, 30-05-2006)

However, the faculty member who originally led the project has withdrawn: "Generally speaking, my experience with the project was very good. Everyone was friendly and helpful. Looking at it in retrospect, I would never enter into anything like this again because it is just all done on the margins" (FM-7, 30-05-2006).

Bringing TEL-sponsored CMLT projects "in from the margins" to become core academic activities has remained a persistent problem across collegial settings in this study. This faculty member's emphasis of lack of sufficient time echoed all other accounts of faculty experiences in adopting CMLTs. Across accounts of faculty member's experiences, multiple confounding factors, many of which have been well beyond the scopes of specific CMLT adoption project issues, have impeded projects' progress and consumed faculty member's time. Coordinating the efforts of large teams has emerged as a notable theme. The need to align boundaries around

academic freedom to allow for standardized curricula in introductory undergraduate courses has emerged as a consistent an organizational challenge that deserves further investigation.

In the "super course" experiment, acquiring third-party copyright permissions in the context of complex publishing-house mergers played a significant role in project delays.

Institutional requirements for faculty members to surrender intellectual property and moral rights (i.e., relinquish both ownership of work completed and the right to prevent alterations to CMLT artifacts in the future) eroded individual commitments to this project's completion.

While some confounding factors remain difficult to predict and manage across project settings, aligning existing institutional policies with strategies and sensibilities that encourage and support CMLT adoption could be accomplished. The "super course" team members' motivations to improve students' learning experiences, provide flexibility of access for students' learning opportunities, and measure the results of adopting CMLTs to achieve these goals have been impeded by confounding factors both within and beyond the abilities of the institution to adapt effectively.

Narrative #8: The one-development-model-does-not-fit-all-projects problem: The computer science story. The Computer Science Department described in this study enrolls undergraduate and graduate students. Faculty members in this department are involved in a series of national and international research initiatives.

The Computer Science Department's approach to TEL-sponsored CMLT development was unique in that the department chose to design their courses for delivery in their own course management system. While all other Web-based course projects involved contributions from "the local campus expertise" for instructional design and media development in order to deliver

online learning through the institutionally mandated *WebCT* courseware, Computer Science decided to use their own technologies and to rely solely on internal expertise. While this choice was politically sensitive, and initially, painted the department as "radicals or rebels…who did not believe in the campus as a team," the department members chose to challenge "the institutional drive to have a one-size-fits-all solution for the campus" in order to meet three important goals (FM-8, 13-04-2006).

First, the department had a strong interest in research in the areas of "e-learning and in interactive online systems" (FM-8, 13-04-2006). In a setting where research is "enabled by teaching," course development, teaching, and research are combined departmental goals:

> That research, in order to be most valuable, needed to be grounded in the reality that only building real courses and [the challenges that] delivering those courses actually presented for us. [We wanted take advantage of] the opportunity for data collection to support the research. Having real students in real courses allowed us opportunities to conduct research studies. (FM-8, 13-04-2006)

A second departmental goal was to provide leadership in developing, testing, and innovating e-learning technologies: "As a computer science department, we have a responsibility to be the leaders in technology and to bring new technology ideas to our local community, as well as our international communities" (FM-8, 13-04-2006).

The third goal was to simultaneously build an e-learning team of experts, who could promote technological innovation and increased compliance with international technological standards:

> The fact that we wanted to explore standards-based, Open Source approaches to the technology, when those seemed to be not well supported institutionally,

> caused some difficulties and some challenges. It also actually cost us quite a lot, in terms of the people power to support those. The department really did invest quite heavily through the work of various technical staff to support these Open Source products.
>
> [We wanted to take] the opportunity to actually build a team that could train other people, who could share some of our expertise. I guess, in trying to grow that team, involving people like you, involving other people around the campus community to try to encourage them to look a little bit more forward–looking in terms of what technology can do. And also to try to encourage the use of some of the standards in learning objects and content packaging and those sorts of things that other people were not doing yet, within the institution. Those [were the] sorts of things we felt would be beneficial to the campus community. We thought creating and building our own nucleus was a way to actually promote some new ideas for the campus. (FM-8, 13-04-2006)

In order to meet departmental goals in a timely fashion, the development team felt they needed to avoid "waiting for other people's schedules" and "competing with other projects" (FM-8, 13-04-2006). They were confident they could meet "what some would consider unreasonably tight timelines on some of the courses," through building tightly knit internal development teams:

> We knew how quickly we could do things. We knew how quickly we could schedule the development in a way where we didn't have to wait. [We] managed to hit the goal in every case. I think this has not been the case in many of the other projects.

> As a result of this, I think there are some lessons to be learned about how to constitute a team for a project and how to, maybe, bring the components of the team a little bit more closer together, [and make it] more tightly knit. I think that that is a direction that other successful e-learning development groups around the country have used. To basically put their instruction designers, their media people, their technology people all in the same place, so that they actually encounter each other on a much more regular basis. And even when they are working on many different projects, with different sub-collections of those folks focused on a particular team project, by encountering each other daily and running into each other in the hallways, [they can] achieve synergy. I think [frequent contact and exchanges of ideas] encourages them to understand each other a little better. Informal communication is needed within a team. (FM-8, 13-04-2006)

Over time, the Department's track record in delivering quality courses in a timely manner eroded resistance to their use of different technologies and a different approach to project management:

> It was very hard to actually get through the campus bureaucracy to be recognized and noticed on the outside because we didn't fit the mold. As it became clear that what we had to contribute, that what we could build was reliable, and that we could actually deliver on the objectives, those barriers came down. (FM-8, 13-04-2006)

Through the process of developing strategies for meeting departmental goals, the Computer Science TEL development team realized three unexpected benefits for their classroom-based learners. The first benefit was a shift in instructor role:

> We were not expecting to see how this would affect the delivery of our face-to-face courses. Moving more to a facilitator role, from a lecturer role for our instructors, is one of the opportunities that comes with more blended approaches.

A second unexpected benefit was a more-than-expected ability to reuse content.

> A lot of the content is available for students when they want it and when they need it. What we have managed to do, over time, is to reuse those materials in a variety of ways. (FM-8, 13-04-2006)

Finally, the tutorial approach to online learning influenced the pedagogy of face-to-face instruction within the Department:

> I think also online tutorials have become a really quite valuable component that we probably didn't expect. The development of online tutorials actually changed the way in which we deliver face-to-face tutorials. We use the online materials to deliver our face-to-face tutorials. We have reduced the staff requirements for those tutorials by half.

TEL team successes contributed to a new level of enthusiasm within the Department.

> I think there was a lot of excitement and enthusiasm that came with achieving some levels of success in TEL projects that really got a number of our support staff excited because they were actually seeing successes, benefits for not just the students in online classes, but for all the students involved in various blended learning experiences. That caused a lot of enthusiasm with our instructional

> support staff and technical staff groups and even our research staff to get heavily engaged in these kinds of activities. So they were putting in a lot of personal hours they would normally have been devoting to personal pursuits, personal professional pursuits in their job. That time was focused in this direction.
>
> And I think that that was a huge advantage. It's actually just an example of the kind of synergy you can get around a successful project. I don't even want to talk about that in the past tense because think that synergy continues and other projects that we are pursuing now. We live and die, based on the enthusiasm of the individuals who are involved. (FM-8, 13-04-2006)

This faculty member's experiences with TEL projects, from the view of the Computer Science Department's unique approach, have crystallized into a personal analysis of the TEL program to-date and a vision for the future of e-learning for the campus:

> There was a systemic problem, I think, and it still exists with TEL: a tail-wagging-the-dog problem. Where TEL, because it came with a reasonable amount of money attached, caused the university as an institution to take a direction on e-learning that was unplanned, which was not really well thought through. It was reacting to these new resources that suddenly appeared. So we took a much more reactive approach than a planned, strategic approach. Hence, I think the need now is to create an e-learning strategy for the campus. I think that is a crucial thing, and hopefully will be happening. Our senior leaders are recognizing the necessity of that now. I am sure that something will be happening very soon. (FM-8, 13-04-2006)

In this faculty member's view, e-learning may play an expanding role in the future of the campus, and perhaps, even have an influence in defining future physical structures:

> There are still some areas where there are some "big win" potentials in e-learning. One of them just comes around the question of the cost of building mega classrooms. There is a lot of interest, right now, in the university - in some quarters - to build the mega lecture theatres where we can have the 1200-person lecture theatre to deliver instruction more efficiently. Everyone can pack into this one lecture theatre. At the same time, other institutions are looking at delivering lectures through pod casts. Students are getting the same experience that they would in a 1200-person lecture theatre, except that they can turn on the lecture whenever they feel that they want to, and review it, and replay it. The cost to produce a pod cast is a heck of a lot less than the cost to build a lecture hall. And so I think we need to be rethinking how our physical facilities will be impacted by online activities for on-campus students. (FM-8, 13-04-2006)

The Computer Science story echoed issues in CMLT development and delivery options within and across academies. Global standardization of e-learning deployments for CMLT components across technological settings has become a topic of concern (Institute of Electrical and Electronics Engineers, 2004; Wiley, 2002). Interoperability of content elements and pedagogical strategies across vendor-specific learning management systems and Internet browsers has not been realized. Given the variety of learner-accessed computer systems, ensuring the uniform presentation of information and functionality of learning and social interaction tools has become a paramount concern for the Open Source movement and for Computer Science departments across academies (Daniel & Mohan, 2004; Wasson, 2006).

Further, this group of early adopters has forged a strong link between research and teaching with technology that supports their broader role in the academy through an alignment with institutional reward systems and the institutional mission to create new knowledge.

Institutional adoption of scalable vendor-specific e-learning solutions has limited the use of emergent, standards-compliant technologies for the sake of managing necessary incremental approaches to technological and cultural change for latter-stage adopters. Standards-compliant, Open Source tools can support, customize, and personalize e-learning environments within many technological and geographical settings, including emergent mobile technological settings, but their use requires an in-depth understanding of information technologies. Vendor-specific learning management systems offer a set range of technological tools that support course delivery in a homogenous, if somewhat pedagogically and technologically restricted, learning environment. However, the implications for increased faculty development in technological literacy and further expanded expectations for faculty time, as well as the increased need for technological support, make their use in some college settings currently impractical. Therefore, institution-wide implementations of single e-learning solutions may not fully support the poly-cultural nature of the academy.

Phase II Data Analysis—Identifying Common Themes

Identifying common themes and considering their implications occurred in a three-stage data analysis process. In Stage 1, I re-read the original transcripts of faculty interviews, as well as the narratives, noting issues that were raised in each interview. Stage 2 involved identifying levels of consensus within responses to each of the four questions in the interview protocol. In Stage 3, I conducted an environmental scan of provincial and institutional TEL-sponsored

CMLT project documentation, noting issues and experiences reported in the documentation that corroborated with the results of this study.

A particularly rich source of documented evidence was found in the *Review of the Technology Enhanced Learning (TEL) Action Plan* (Ekos Research Associates, 2005), which included a general literature review; a meta-analysis of provincial and institutional documentation of the 2000-2005 TEL initiative; surveys of institutional leaders', faculty members', instructional designers', and students' experiences; and recommendations from a panel of experts on e-learning in Canada. Levels of consensus and alignment between the findings of this study and third-party documentation have been identified in the results that follow.

Common Themes

An examination of the interview data in this study provided insights into faculty motivations for adopting CMLTs into teaching praxis and resultant changes to the scholarship of teaching, compensation to faculty for time invested in pedagogical and technological innovation, and the extent to which institutional structures, cultures, and policies supported or impeded their efforts. These insights could be applied to organizational planning for the future of technology enhanced learning in the institution, and perhaps, beyond.

Participants' Motivations for Involvement in CMLT Development Projects

Faculty participants in this study described a variety of motivations for adopting CMLTs. Curricular development, standardization, renewal, and refinement were the most prevalent motivations. All participants reported efforts to affect curricular change. Three of eight participants were involved in writing new content as a part of their TEL projects (FM-2, 13-07-2006; FM-5, 16-05-2006; FM-6, 18-04-2006). Three participants were involved in efforts to

standardize curriculum across multiple sections of existing undergraduate courses (FM-3, 19-05, 2006; FM-5, 19-05-2006; FM-7, 30-05-2006). One participant described a process of curricular renewal, designed to promote best practices across professions and phases of professional development (FM-1, 13-06-2006). Another participant described his efforts to "reinvent" curriculum in his discipline (FM-5, 16-05-2006). Two participants reported efforts directed toward getting curriculum slimmed down to ensure there was not a great deal of overlap (FM-1, 13-06-2006; FM-6, 18-04-2006). One participant used CMLTs "to reuse" (FM-8, 13-04-2006) newly developed learning materials across courses in order to create efficiencies.

A second pervasive motivation was pedagogical innovation. Six participants described efforts striving to address "something lacking in the standard [classroom-based lecture] approach" (FM-1, 13-06-2006), "inventing ideas" (FM-5, 16-05-2006) on how to best use technology to support teaching (FM-2, 13-07-2006; FM-7, 30-05-2006; FM-8, 13-04-2006), finding "alternative ways of reaching" and "stimulating learners" (FM-3, 19-07-2006), and sustaining enthusiasm for learning "to keep that fire alive" (FM-1, 13-06-2006). All participants reported a desire to engage in reflective and critical approaches to pedagogy, designed to encourage independent and collaborative student learning opportunities beyond the classroom. Seven of eight participants identified their desire for pedagogical innovation as a key component of sustained commitment to project completion (FM-1, 13-06-2006; FM-2, 13-07-2006; FM-3, 19-07-2006; FM-4, 28-03-2006; FM-5, 16-05-2006; FM-6, 18-04-2006; FM-8, 13-04-2006).

Providing students with more flexible access to learning opportunities was a third common theme. All participants noted an increasing need to have content available for students when they want it and when they need it to provide campus-based and distance students with opportunities to study at their. One participant observed, "You can take [CMLTs] home with

you. “In the middle of the night, if you have a question about an upcoming project or whatever, you can access the material” (FM-1, 13-06-2006). Faculty members’ empathy for time pressures in students’ busy lives consistently underpinned the motivation to provide flexible access to learning materials and environments.

A fourth shared motivation for faculty involvement in CMLT development was integrating research into teaching. Three participants expressed the need for educational effectiveness studies to find out if technology enhanced learning is more effective, has the same level of effectiveness, or is less effective (FM-2, 13-07-2006; FM-7, 30-05-2006; FM-8, 13-04-2006). One participant reported, “Having real students in real courses allows us opportunities to conduct research studies” (FM-8, 13-04-2006). As participants were motivated by pedagogical innovation, it is not surprising that a concern for testing the efficacy of innovations was reported by half of the participants.

Corroboration with TEL documentation. Data reported in a broader study of the 2000-2005 provincial implementation of the TEL program across institutions (Ekos Research Associates, 2005) identified six motivations for involvement in the TEL initiative: (1) respond to a department initiative [33 %], (2) enhance course content [30 %], (3) enhance opportunities for students [29 %], (4) further personal “professional development/experience [24 %],” (5) expand “accessibility” to learning opportunities for learners [10 %], (6) “improve communications with students [7 %]” (Ekos Research Associates, 2005, p. 28). At the provincial level, faculty member’s motivations for adopting CMLTs into teaching praxis were most strongly focused in three areas: (1) responding to departmental initiatives, (2) developing or renewing course content, and (3) enhancing student learning experiences.

In this study, seven of eight participants reported becoming involved in a TEL-sponsored CMLT project, in part, as a response to an institutional initiative; i.e., fulfilling a request from a university administrator, a dean, or department head (FM-1, 13-06-2006; FM-3, 19-07-2006; FM-4, 28-03-2006; FM-5, 16-05-2006; FM-6, 18-04-2006; FM-7, 30-05-2006; FM-8, 13-04-2006). All eight participants reported becoming involved in a TEL project in order to develop new course content, enhance or standardize existing course content, or renew course content. Seven of eight participants included enhancing student learning as a basis for their motivation for involvement in a TEL project (FM-1, 13-06-2006; FM-2, 13-07-2006; FM-3, 19-07-2006; FM-4, 28-03-2006; FM-5, 16-05-2006; FM-7, 30-05-2006; FM-8, 13-04-2006). Six of eight participants included personal-professional development for teaching in a new context as a contributing factor to their motivation for involvement in a TEL project (FM-1, 13-06-2006; FM-2, 13-07-2006; FM-3, 19-07-2006; FM-4, 28-03-2006; FM-5, 16-05-2006; FM-8, 13-04-2006). Increasing the flexibility of student access to learning experiences was also reported as a common motivator for engaging TEL projects. Two of eight participants addressed the concern for improving communications with students in their rationales for engaging in technology enhanced learning (FM-1, 13-06-2006; FM-8, 13-04-2006).

Changes to the Scholarship of Teaching Influenced by CMLTs

Six of eight participants reported CMLT project development as having had an influence on the scholarship of their teaching (FM-1, 13-06-2006; FM-2, 13-07-2006; FM-3, 19-07-2006; FM-5, 16-05-2006; FM-6, 18-04-2006; FM-8, 13-04-2006). Specific influences varied across disciplinary settings. Computer science and social science participants noted that CMLT development influenced the use of tutorials in their disciplines. The computer science participant noted that “online tutorials” had become “a really quite valuable component that we probably

didn't expect," and that achieving that value has also led to "online tutorials actually changing the way in which we deliver face-to-face tutorials" (FM-8, 13-04-2006). He described a further influence of CMLTs on the scholarship of teaching in his department: "We were not expecting to see how this would affect the delivery of our face-to-face courses. Moving more to a facilitator role, from a lecturer role for our instructors, is one of the opportunities that comes with more blended approaches" (FM-8, 13-04-2006).

A social science faculty member commented, "Classes of 350 with one instructor in front of them, going through the material is not a particularly useful experience" (FM-7, 30-05-2006). Becoming involved in a technology enhanced learning project provided an opportunity to "reintroduce weekly tutorials in smaller classes for students" (FM-7, 30-05-2006).

Participants from Native Studies and Education described the benefits of online discussions. One participant observed that online discussions among learners allowed students to "internalize the issues," "deal with them," and come to their "own conclusions" (FM-5, 16-05-2006). He added, "The freedom of using this new technology that allows that to happen. I cannot do that in a lecture" (FM-5, 16-05-2006). This participant, as noted previously, provided a second example:

> I am getting so much more than I expected from the students. They are just throwing themselves into it. For instance, there was a little discussion about how many First Nations groups there are in Saskatchewan. If you go to the Websites, the FSIN claims to represent 84 different groups. If you go the government Website, it says that there are 74 First Nations in Saskatchewan. If you go to other Websites, you will find different numbers all over the place. So what the students decided to do last term was to go out and actually find out how First Nations

> groups there really are. And they did it. They reported it back. It was original research. They did it. They didn't just read the facts in the book, and say it is 74 and get the question right on the exam. They actually did some research on their own. It wasn't my idea. It just came up in the discussion group. (FM-5, 16-05-2006)

Another participant noted: "We were constantly on the lookout for different ways to engage the learners. To me, that is really, really sound pedagogy, and in some ways, I do things better online" (FM-3, 19-07-2006). While this participant was initially much more comfortable with classroom-based teaching, and somewhat anxious about facilitating online discussions, he noted that: "By week two or three, things are racing already, in terms of discussion. You look back, and in a very short period of time, the learners are not only engaged with the subject …, they are also very proficient with the technology" (FM-3, 19-07-2006).

Participants from the Colleges of Dentistry and Veterinary Medicine stated goals for their students to become independent learners through the use of CMLT self-study modules. One participant explained:

> Allow the student to do a lot more self-study on these more simple [online] pieces. You don't need a professor to do that. You can do it yourself. [Then] we … can approach some of the more turgid types of readings, and unpack some of that in the classroom, in small groups where there is a very individual, mentorship type process. (FM-1, 13-06-2006)

The participant who had developed a self-learning veterinary education module stated, "When I started, I was a veterinarian. [Being involved in a CMLT development project] has

widened my horizons about how I think about teaching and the whole education process" (FM-2, 13-07-2006). This participant added, "The students gave the most support" (FM-2, 13-07-2006).

Participants in this study consistently reported a desire to move away from traditional, lecture-based instructional approaches and toward more student-centered, independent, collaborative, and small-group mentorship teaching models in order to increase learner engagement with content and with contemporary disciplinary and inter-disciplinary issues. As CMLTs can effectively facilitate peer-to-peer learning where "students do not so much interact *with* the technology as *through* the technology with teachers and other learners" (Bates, 2000, p. 27), CMLT adoption can provide new kinds of opportunities to achieve higher order thinking and problem-solving abilities. Interacting with peers via online communication has been shown to promote "collaborative learning," and support the development of teamwork capacities (Bates, p. 27). Interacting with peers and teachers, and in some cases external experts in the field of study, can open new opportunities for faculty and students to explore more complex concerns of and across disciplines, aligning contemporary learning experiences in higher education more closely with both the knowledge economy and postmodern organizational cultures. Therefore, promoting CMLT adoption as an efficacious adjustment to more traditional practices in educating professionals for future contributions to a knowledge society may have been timely.

However, four of eight participants in this study expressed a concern for the need for a research-based approach to the design and development of TEL-sponsored CMLT projects in order to move in this direction with more confidence that CMLT adoption actually produces desired learning results across disciplinary and collegial settings (FM-2, 13-07-2006; FM-3, 19-07-2006; FM-7, 30-05-2006; FM-8, 13-04-2006. As one participant noted, his colleagues needed

to “see good research that actually it works” (FM-2, 13-07-2006), before they would accept technology enhanced learning as an alternative to traditional modes of teaching.

Corroboration with TEL documentation. In the provincial study of the broader TEL program, learners reported that technology enhanced learning served their needs in a variety of ways: allowing learners to live and study in their own communities (68 per cent), providing scheduling flexibilities (66 per cent), increasing independent learning skills (62 per cent), reducing the cost of education (45 per cent), enabling earlier program completion (43 per cent) (Ekos Research Associates, 2005, p. 59). In addition, nearly half of learners reported TEL courses as a “providing a better/enriched learning experience” (Ekos Research Associates, p. 59).

The need for flexible access to learning was emphasized in these findings. “If denied the opportunity to work,” many of these students “would be denied the opportunity of higher education” (Bates, 2000, p.17). The level of student support suggests continued efforts to integrate CMLT developments into the scholarship of teaching in higher education in order to provide flexible access to learning remain worthwhile. However, ensuring that pedagogical innovations are rigorously tested was a concern raised in the provincial review. A “lack of research into the effectiveness of TEL” (Ekos Research Associates, 2005, p. vi), was reported as a key concern in the planning and implementation of the program.

Returns on Investment for Faculty Time Committed to CMLT Innovations

All participants, regardless of the stage in their academic careers, commented on the more-than-expected necessary time to complete a TEL project. Five participants reported receiving inadequate time, compensation, or recognition for their commitments (FM-1, 13-06-2006; FM-2, 13-07-2006; FM-3, 19-05-2006; FM-4, 28-03-2006; FM-7, 30-05-2006).

The graduate student participant remarked, “What I did was more than I should have done for a project-based Masters’” degree (FM-2, 13-07-2006). A new faculty member, beginning the process of earning tenure, commented that during this faulty member’s first year at the university, she was asked “in the fall to develop the content of a new online course that was already in the calendar to be offered in the spring of the next year. So I had to write the content, as well as the online instruction in a short timeframe” (FM-4, 28-03-2006).

A second tenure-track faculty member observed: “I don’t think there is a complete understanding about the time it takes either at the developmental stages, or once it is developed, at the operational stages, for an online course” (FM-3, 19-05-2006).

Both tenure-track faculty members expressed concern that taking the time to complete TEL projects may have compromised their ability to earn tenure. One tenure-track faculty member commented that for tenure purposes, “an article in a published journal is still worth twice as much. Right now I need to be doing research and publishing. I have developed enough courses. I need to work for tenure. [TEL Course development] is just not recognized” (FM-4, 28-03-2006).

The second tenure-track faculty member originally became involved in TEL development in his third tenure-track year, when it “became obvious” to him that he “needed to produce more refereed publications” (FM-3, 19-05-2006). Initially, he believed that being involved in TEL development and delivery “was one way” to buy time and make his schedule more flexible (FM-3, 19-05-2006). He discovered, “It is by far more work to teach online than it is in the traditional way” (FM-3, 19-05-2006).

An assistant professor participant described his commitment to a TEL course development project as “a very long process” (FM-5, 16-05-2006). An associate professor

struggled to manage a TEL project that "grew like topsy" and simultaneously respond "to the clinical needs of patients and students" (FM-1, 13-06-2006). This participant identified his primary limitation as "the time I have to work on the project as opposed to all of the other pressures," including institutional "over emphasis on research" and on acquiring external grants (FM-1, 13-06-2006).

Three department heads reported time-commitment challenges. One department head reported himself, his faculty, and his staff redirecting "a lot of personal hours" into what "would normally have been devoted to personal pursuits [or] professional pursuits" (FM-8, 13-04-2006) into TEL development. Another department head explained that encountering unexpected tasks, such as conducting learner/client analysis, content analysis, as well as developing marketing and cost-recovery strategies and determining "fair compensation" instructors across colleges as reasons why his TEL program's "delivery was postponed" (FM-6, 18-04-2006). A third department head remarked:

> Part of the unraveling of this entire project is probably because I didn't recognize how monstrous this animal was. [The project] simply didn't get the time that it needed and it needed a lot of time. It needed more time than anybody figured it might need. That is what I mean about these courses being developed on the margins. They are being developed not only on a financial margin, but [also] on a time margin. It is all done in terms of spare time that faculty have. Nobody received any money for doing anything. The pay off for doing this is intellectual and intellectual alone. There is really no pay off. You do your regular job and then add this on. (FM-7, 30-05-2006)

Corroboration with TEL documentation. Participants' reports of the lack of return on investment for time committed to CMLT adoption and innovation align closely with data from the Provincial TEL review. In the provincial results, 76 per cent of faculty respondents identified lack of faculty time "to develop and/or integrate technology into instruction" as a "large" institutional barrier to the adoption of CMLTs (Ekos Research Associates, 2005, p. 30). Institutional acknowledgement of the increased time commitments required to integrate technology could mediate the effect of this barrier.

Sixty per cent of faculty members who participated in the Provincial review reported "a lack of institutional incentives or recognition for faculty who participate in technology enhanced learning" (Ekos Research Associates, 2005, p. 30). Half of the participants in this study expressed similar concerns about the lack of recognition for TEL work for tenure and promotion purposes. Participants in the process of earning tenure expressed an especially urgent sense of professional vulnerability in the tension between CMLT development time commitments and competing research responsibilities.

The Extent to Which Institutional Structures, Cultures, and Policies Supported or Impeded Successful Design, Development, and Delivery of CMLTs

All eight participants identified sources of organizational structural, cultural, and policy-based supports for CMLT projects. Seven participants expressed appreciation for the support they received from the Instructional Design Group and/or the Division of Media and Technology (FM-1, 13-06-2006; FM-2, 13-07-2006; FM-3, 19-07-2006; FM-4, 28-03-2006; FM-5, 16-05-2006; FM-6, 18-04-2006; FM-7, 30-05-2006). Three participants highlighted the value of additional financial resources and support staff provided by their colleges or departments (FM-1, 13-06-2006; FM-5, 16-05-2006; FM-8, 13-04-2006). Two participants focused on the

contributions of the TEL funding and Campus Saskatchewan (FM-5, 16-05-2006; FM-8, 13-04-2006). One participant noted necessary support from senior campus administration (FM-5, 16-05-2006).

Participants' reports of institutional structures, cultures, and policies that impeded successful design, development, and delivery of CMLTs reflected the instructional designers' concerns expressed earlier in this dissertation. Structural concerns most often include the confounding factors that create tensions within CMLT-development teams, which team members can neither mediate nor control, that threaten commitments to project completion. Lengthy approval processes for new programs, the need to plan cost-recovery approaches via identifying potential learners/clients and marketing strategies to reach these clients, dealing with third-party copyright and local intellectual property concerns, coping with shifting team membership, each distracted faculty members' attention and took time away from project work.

Three participants commented on the nature of working with large development teams (FM-6, 18-04-2006; FM-7, 30-05-2006; FM-8, 13-04-2006). One of these participants described a rationale for managing a complete team within a single department. "The expertise was all here, in the department and in the research lab, and so we felt that we could do it internally. We didn't have to wait for other peoples' schedules, and we didn't have to compete with other projects" (FM-8, 13-04-2006). Two participants described faculty availability as a challenge in large development teams. One observed that faculty "personnel turnover" had impeded progress in a TEL project: "people change, organizations change, priorities change" (FM-6, 18-04-2006). Another participant noted that "the group of faculty who were interested in completing the modules" could not "meet frequently enough," so the project "got dragged out over a year, which was probably too long" (FM-7, 30-05-2006). One participant described the cadences of lives of

faculty members in his department, “Two of the folks, who are key in [my] initiative are on leave this year” (FM-6, 18-04-2006) As both the provincial funding body and the institution have identified a programmatic focus for future TEL-sponsored CMLT projects (Ekos Research Associates, 2005; U of S Institutional Plan for Technology-Enhanced Learning, 2004), managing the complexities of large programmatic development teams remains an area of concern that will need to be addressed.

Hagner and Schneebeck’s (2001) observation of, “the tradition-bound nature of the academy” and “the slow pace of change in almost every aspect of campus life” (p. 2) is echoed in three of the eight narratives. The “very wearying,” “daunting challenge” of getting [an inter-disciplinary graduate] program “approved by committee in the College of Graduate Studies” (FM-6, 18-04-2006) and the Native Studies Department’s struggle with “the incredibly slow moving systems of the University” (FM-5, 16-05-2006) provide examples of an organizational pace unsuited to adapting to a rapidly changing environment. The Computer Science Department’s difficulties getting “through the campus bureaucracy,” and having to challenge “the institutional drive to have a one-size-fits-all solution for the campus” provide evidence of structural and cultural organizational barriers to adopting “a little bit more forward-looking” approach to e-learning (FM-8, 13-04-2006).

Five participants described a sense of collegial skepticism, fear, or misunderstanding of computer-mediated learning technologies as an initial cultural barrier that they needed to overcome. The Computer Science Department encountered difficulties with “the institutional drive” for implementing standardized technologies for the campus, “something that we were fighting against from the beginning and it has been an uphill fight” (FM-8, 13-04-2006). The Native Studies Department found itself in a prolonged legal dispute with sessional lecturers who

perceived the TEL project as an attempt to replace classroom-based instructors with "an electronic textbook" (FM-5, 16-05-2006). In the inter-disciplinary graduate program, the project leader needed to mediate a "debate about the value of online versus the value of on campus courses," where some faculty members were "skeptical about online delivery in principle" (FM-6, 18-04-2006). In another college, the TEL developer needed to provide empirical evidence of educational effectiveness of a self-learning module in order to dispel "at lot of fear" about technology enhanced learning (FM-2, 13-07-2006). Finally, one participant reported a concern that TEL projects seemed to be the "initiative of individuals rather than by departments" (FM-3, 19-05-2006). This participant did not "see a lot of other people seeing the value in teaching online" (FM-3, 19-05-2006).This participant continued, "I had a colleague often say, 'So how many courses are you teaching?' It was because I wasn't in a classroom, and that [lack of understanding] actually bothered me greatly" (FM-3, 19-05-2006). Only three of eight participants reported that they felt strongly supported by their colleagues within their departments or colleges for their CMLT development work.

Two participants identified institutional policies as restraining factors for continued involvement in development work (FM-1, 13-06-2006; FM-3, 19-05-2006). The lack of ongoing technical, administrative support for online courses and course maintenance support was noted (FM-3, 19-05-2006). In the words of one participant, a CMLT project "is a living piece of work that we are doing. Everything that we are doing will go out-of-date very rapidly. How will it be maintained? To some extent, we are creating a stick to beat ourselves" (FM-1, 13-06-2006).

In the time period following the interviews for this study, the provincial funding agency and institution have acknowledged the need for project maintenance and targeted funding has been provided for this work (Ekos Research Associates, 2005; Morrison & Rowan, 2006).

Participant concerns about technical and administrative support for online courses have not, to date, been addressed in policy documentation at an institutional level.

Finally, two participants expressed concerns about the institutional intellectual property policy (FM-2, 19-05-2006; FM-7, 30-05-2006). One participant identified the intellectual property policy as barrier to successful project completion: "TEL wants all authors to sign away not only copyright, but their moral rights. To me, that is, personally, a huge problem. The whole copyright and moral right issue really doesn't sit very well with me at all" (FM-7, 30-05-2006).

Since the time when these interviews were conducted, the Faculty Association at this institution has mounted a successful challenge to the intellectual property policy. The faculty member at the centre of this challenge has retained ownership and the right to publish CMLT project artifacts. This challenge may result in opening formal negotiations between the University and the Faculty Association for inclusion of CMLT intellectual property rights in the Association's collective agreement.

Corroboration with TEL documentation. Ekos Research Associates (2005) acknowledged among their key findings that the pace of "cultural and institutional change can be a slow process," and that "slow buy-in on the part of some institutions" had impeded the pace of implementation of the TEL program (pp. vi-vii). This Provincial finding is consistent with the results of this study, where half of the participants reported slow moving systems within the University as impediments to CMLT projects' progress.

Collegial skepticism, fear, or misunderstanding of technology enhanced learning was reported as a cultural barrier to CMLT adoption by five of eight participants in this study (FM-2, 13-07-2006; FM-3, 19-07-2006; FM-5, 16-05-2006; FM-6, 18-04-2006; FM-7, 30-05-2006) Similarly, 48 per cent of participants in the Provincial study reported "concerns that TEL

undermines the quality of teaching and learning" (Ekos Research Associates, 2005, p. 30). Five of eight participants in this study expressed the need for effectiveness research in order to mediate colleagues' concerns about the quality of CMLT-based approaches to teaching (FM-2, 13-07-2006; FM-3, 19-07-2006; FM-5, 16-05-2006; FM-6, 18-004-2006; FM-7, 30-05-2006).

The lack of ongoing technical and administrative support for TEL-sponsored CMLT projects was a concern expressed by only two of eight participants in this study (FM-1, 13-06-2006; FM-3, 19-07-2006). In contrast, 49 per cent of faculty participants in the Provincial study identified this lack of support as a barrier to adoption (Ekos Research Associates, 2005, p. 30). "Concerns about intellectual property and copyright" were reported as a barrier to adoption by 59 per cent of faculty in the Provincial survey (Ekos Research Associates, p. 30). Only two participants in this study expressed this concern (FM-3, 19-07-2006; FM-7, 30-05-2006).

Summary

Despite the challenges of organizational and cultural change involved in the first five years of TEL-sponsored CMLT development at the University of Saskatchewan, strong faculty commitments to supporting departmental initiatives, renewing and developing curricula, enhancing student learning experiences, and increasing flexibility of access to learning experiences have, no doubt, contributed to positive student satisfaction ratings of CMLT-based courses and learning resources.

In light of the predominance of positive student satisfaction ratings, sustained faculty commitments to enhancing flexibility of access to and quality of student learning experiences, and the Provincial finding that "TEL is 'here to stay' and indeed demand is expected to increase" (Ekos Research Associates, 2005, p. 75), it is reasonable to accept that TEL-sponsored CMLT initiatives can be deemed worthwhile because they do meet learner needs and have sufficient

utility (Guba & Lincoln, 1985). Further, e-learning initiatives are "becoming an important element of strategic plans for many post-secondary institutions to meet the expectations of students and faculty," and therefore, can be seen as an efficacious adjustment to emergent [knowledge-based economy] circumstances in the Province of Saskatchewan where a dispersed population needs flexible, affordable access to life-long higher education learning opportunities, for which alternative responses have been insufficient (Ekos Research Associates, 2005).

Provincial funding has provided initial support for content development, faculty development, instructional design, media development, information technology support, and learner services, all of which have contributed to technology-enhanced learning becoming operationally viable. As long as provincial funding continues to target funding for CMLT development and renewal, the University of Saskatchewan's e-learning initiative will remain "fiscally viable" (Guba & Lincoln, 1985). The question of whether e-learning will stabilize as a "politically viable" (Guba & Lincoln, 1985) undertaking may be contingent upon changes to university policy and governance that bring CMLT-project activities in from "the margins" and acknowledge and reward faculty efforts directed toward e-learning development as a core function of the institution.

Though taking into account the influences of organizational structures, cultures, pedagogies, and economies on individuals' motivations to undertake and sustain commitment to CMLT adoption into university-level teaching praxis, it has been my hope—as an educational researcher—to develop and disseminate a deeper understanding of the life spaces of faculty who undertake this challenge. The findings of this study, reported and discussed in Chapter 6, address this goal.

CHAPTER SIX:

FINDINGS AND DISCUSSION

In this concluding chapter, I reconsider my position as a researcher within the context of this study. I summarize the study and review of the problem, the research questions, methodological choices, and the purpose for undertaking this research. I present findings of this study and the implications of the findings for theory, potential applications to organizational change, and suggest an area for further investigation. The chapter concludes with my closing comments on this study.

Choice of Study Topic

To this study, I brought my histories as a citizen of the Province of Saskatchewan, as an adult distance learner, an adult distance educator, and an instructional designer. Who I am and how I learned and later practiced my profession, no doubt, have influenced what I wished to study (Scheurich, 1984). My interest in the application of computer mediated learning technologies to provide more flexible access to higher education for adult distance learners across this province and to enrich selected learning experiences for campus-based students of higher education was initiated by my own learning, instructional design, and teaching experiences. The decade I have spent as an instructional designer, working in team-based projects, has stimulated my deep interest in understanding the driving and restraining forces (Lewin, 1951) that mark the life spaces of faculty members who choose to adopt CMLTs into their teaching praxis, as well as finding ways to better support their efforts.

The Researcher's Perspective

My analysis of data gathered from dual research perspectives—that of a complete member researcher and that of an aware observer—has, no doubt, influenced, to some degree, my long-term involvement in the five-year TEL program I have studied. As the instructional designer for three projects, a course developer (subject matter expert) in two projects, and an online instructor in the delivery of one of the resultant online courses, I as a researcher, have significant personal and professional investments in the micro-level success of projects where I have been a complete member within the context of the research undertaken.

I have also had long-term involvement with macro-level organizations, such as the Saskatchewan Learning Exchange (a provincial steering committee), and Campus Saskatchewan (a provincial coordinating organization). These macro-level stakeholders lead and evaluate Provincial TEL program activities. My involvement with provincial stakeholders, combined with my personal experience as a course developer, has had the effect of sensitizing me to variances among macro-level and micro-level TEL priorities. In the process of data collection in projects where I was an aware observer, I have encountered variances across macro-, mezzo-, and micro-level perceptions of project priorities and goals to be achieved through TEL-sponsored CMLT development activities. It is my hope that having had opportunities to participate in and observe multiple perspectives of TEL-sponsored CMLT development activities has enriched my ability to analyze data in this study. However, I know my personal involvement and varied experiences have also made it very difficult for me step back from the "local dynamics" of specific projects in order to delineate "what I know" from "what I suspect" (Merriam, 1998, pp.195-196). This difficulty remains, to some degree, unresolved; therefore, I alert readers of this dissertation to be aware that this difficulty persists and may have influenced reported findings and implications.

The Problem Revisited

The knowledge economy and accompanying global learning society continue to influence, not only economic activities, but also the broader sociopolitical spheres of society, including the educational sphere (Alclay, 2003; Norton, 2000). The positive correlation between long-term economic growth rates and life-long adult learning (UNESCO, 2002) suggests the need for flexible access to higher education to "continually refresh the competencies of knowledge workers" (O'Driscoll, 2003) has become a pervasive and persistent challenge in the high education sector of contemporary society. Within the key findings of this Province's five-year *Review of the Technology Enhanced Learning (TEL) Action Plan*, the researchers posit that technology enhanced learning "is here to stay," "demand is expected to increase," and "this mode of delivery is becoming an important element of strategic plans for many post-secondary institutions to meet the expectations of students and faculty" (Ekos Research Associates, 2005, p. iv). If the adoption of computer mediated learning technologies into teaching is to be sustained and expanded, then the pervasive challenges faculty encounter in their efforts to adopt CMLTs into their teaching praxis need to be identified and mediated.

Review of the Purpose

The purpose of the study was to examine organizational structural, cultural, pedagogical, and economic (reward system) elements of a traditional research-oriented university for influences on faculty adoption of computer-mediated learning technologies (CMLTs). In pursuit of this goal, an attempt was made to discern emergent driving and restraining organizational influences on faculty members' adoption of CMLTs, and to determine faculty members' perceptions of the extent to which university policies and practices were aligned to support the successful design, development, and implementation of CMLTs.

The Research Questions

The research question guiding this study was, "What are the driving and restraining forces in faculty life spaces that inhibit or support adoption of CMLTs into teaching praxis in higher education?" The following questions directed this investigation.

1. What were the motivations for faculty adoption of CMLTs?
2. Did the adoption of CMLTs alter or influence the scholarship of teaching? If so, what changes resulted?
3. What "academic returns on investment" did faculty members receive for time devoted to adopting CMLT innovations into their pedagogical practices?
4. To what extent did institutional structures and policies support or impede successful design, development, and delivery of CMLTs?

The Research Design Revisited

A case study of faculty members, who had led CMLT development teams in a provincially funded Technology Enhanced Learning (TEL) initiative at one university between 2000 and 2005, was conducted in four stages. In the first stage of the study, focus groups and members' checks were held with instructional designers in order to identify potentially information-rich CMLT projects. Findings from this included an examination of the social negotiation process among members of CMLT development teams, and provided the bases for selecting faculty members to invite to participate in the study. Stage Two was a pilot of the faculty interview protocol that resulted in protocol refinement. In Stage Three, seven faculty members and one graduate student participated in interviews and members' checks of the results. Faculty members were asked to describe their motivations for adopting CMLTs into teaching praxis, any resultant changes to their scholarship of teaching, the compensation they received for

time invested in pedagogical and technological innovation, and the extent to which institutional structures, cultures, and policies had supported or impeded their efforts. Stage Four involved an environmental scan of institutional and provincial documentation of the TEL initiative as an avenue to corroborating interview data.

Review of Findings

The four questions in this study elicited narrative accounts of faculty members' experiences in leading TEL-sponsored CMLT development teams. While each narrative was unique, common themes across narratives, which address the four questions in this study, were identified.

Faculty Motivations

Faculty members reported a range of motivations for adopting CMLTs in their teaching praxis. Curricular development, standardization, renewal, and refinement were the most prevalently reported motivations. Faculty participants, who reported curricular-related reasons for becoming involved in a TEL-sponsored CMLT project, attributed their initial interest, in part, as a response to an institutional or departmental initiative (FM-1, 13-06-2006; FM-3, 19-07-2006; FM-4, 28-03-2006; FM-5, 16-05-2006; FM-6, 18-04-2006; FM-7, 30-05-2006; FM-8, 13-04-2006). Participants consistently reported a desire to engage in reflective and critical approaches to pedagogy, designed to encourage independent and collaborative student learning opportunities beyond the classroom (FM-1, 13-06-2006; FM-2, 13-07-2006; FM-3, 19-07-2006; FM-4, 28-03-2006; FM-5, 16-05-2006; FM-7, 30-05-2006; FM-8, 13-04-2006). Desire for pedagogical innovation, as a key component of sustained commitment to project completion, was reported by seven of eight participants (FM-1, 13-06-2006; FM-2, 13-07-2006; FM-3, 19-07-2006; FM-4, 28-03-2006; FM-5, 16-05-2006; FM-6, 18-04-2006; FM-8, 13-04-2006). Faculty

members' empathy for time pressures in students' busy lives consistently underpinned motivations to provide flexible access to learning opportunities. A fourth motivation for faculty involvement in CMLT development was integrating research into teaching. Three of eight participants focused on integrating educational effectiveness studies into their teaching praxis (FM-2, 13-07-2006; FM-7, 30-05-2006; FM-8, 13-04-2006). Corroborative evidence from the provincial level, showed faculty member's motivations for adopting CMLTs into teaching praxis were most strongly focused in three areas: (1) responding to departmental initiatives, (2) course content development or renewal, and (3) enhancing student learning experiences (Ekos Research Associates, 2005, p. 28).

Influences on the Scholarship of Teaching

Six of eight participants attributed the adoption of CMLTs as having had an influence on their scholarship of teaching. However, types of influences varied across disciplines. Participants from the fields of science and social science reported increased interest in and use of student tutorials, which in turn, provided an opportunity for instructors to move away from traditional lecture-based teaching and toward a facilitative approach to supporting student learning (FM-7, 30-05-2006; FM-8, 13-04-2006). Participants from Native Studies and Education reported their discovery of the benefits increased student engagement and independent learning in online peer-to-peer discussions, as compared to their previous experiences with classroom-based learning (FM-3, 19-05-2006; FM-5, 16-05-2006). In contrast, participants from the Colleges of Dentistry and Veterinary Medicine stated their goals for their students to become independent learners through the use of CMLT self-study modules for selected content (FM-1, 13-06-2006; FM-2, 13-07-2006). The selected content included combinations of material that had previously been delivered as classroom-based lectures and in laboratory manuals. While each of these

participants expressed satisfaction with preliminary results of these changes to his or her scholarship of teaching, a concern for gathering evidence on the educational effectiveness of the pedagogical changes was noted (FM-2, 13-07-2006; FM-7, 30-05-2006; FM-8, 13-04-2006). A "lack of research into the effectiveness of TEL" (Ekos Research Associates, 2005, p. vi), was reported as a key concern in Provincial program.

Return-on-Investment for Faculty Time

Ekos Research Associates (2005) reported 76 per cent of faculty respondents in the Provincial study identified lack of faculty time "to develop and/or integrate technology into instruction" as a "large" institutional barrier to the adoption of CMLTs (p. 30). Inadequate time allotted for project completion, insufficient compensation, and lack of institutional recognition for faculty members' CMLT project contributions were reported by a majority of participants in this study as barriers to CMLT adoption (FM-1, 13-06-2006; FM-2, 13-07-2006; FM-3, 19-05-2006; FM-4, 28-03-2006; FM-7, 30-05-2006). The lack of recognition for CMLT-related work for tenure and promotion purposes was of particular concern for participants who were in the process of earning tenure (FM-3, 19-05-2006; FM-4). These participants expressed a sense of professional vulnerability in the balancing commitments to CMLT projects and attending to competing research responsibilities. However, tenured participants also noted difficulty in balancing CMLT project development activities with more traditional activities, such as research, clinical and classroom teaching duties, as well as supervision of graduate students: all of which are recognized for tenure and promotion purposes (FM-1, 13-06-2006; FM-7, 30-05-2006; FM-8, 13-04-2006).

Institutional Supports and Impediments

All participants in this study identified sources of institutional support for CMLT projects. Institutional sources of support included: instructional design, media production, additional financial resources and support staff provided by their colleges or departments, and administrative support from senior management at the University.

A series of institutional impediments were also reported. Three participants provided examples of an organizational pace unsuited to adapting to a rapidly changing environment (FM-6-18-04-2006; FM-7, 30-05-2006; FM-8, 13-04-2006). Ekos Research Associates (2005) noted in Provincial findings that the pace of "cultural and institutional change can be a slow process," and that "slow buy-in on the part of some institutions" had impeded the pace of implementation of the TEL program (pp. vi-vii).The complexities of large programmatic development teams, especially those teams in which there were changes in team membership, long development timelines, and periodic unavailability of key team members proved to be problematic (FM-6-18-04-2006; FM-7, 30-05-2006). Five participants described a sense of collegial skepticism, fear, or misunderstanding of computer-mediated learning technologies as a cultural barrier (FM-2, 13-07-2006; FM-3, 19-07-2006; FM-5, 16-05-2006; FM-6, 18-004-2006; FM-7, 30-05-2006).

Participants reported two problems that could be addressed with institutional policy changes. Insufficient ongoing technical and administrative support for online course maintenance were reported (FM-1, 13-06-2006; FM-3, 19-05-2006). This report is corroborated by 49 per cent of faculty participants in the Provincial study (Ekos Research Associates, 2005, p. 30). Concerns about intellectual property and copyright were reported as a barrier to adoption two participants in this study (FM-7, 30-05-2006; FM-3, 19-05-2006) and by 59 per cent of faculty in the Provincial survey (Ekos Research Associates, p. 30).

Discussion

This study was undertaken to identify the influences of organizational structural, cultural, pedagogical, and economic (reward system) elements of a traditional research-oriented university on faculty adoption of computer-mediated learning technologies (CMLTs). Driving and restraining forces in faculty life spaces that support and inhibit adoption of CMLTs into teaching praxis in higher education have been posited.

Organizational Structures and Functions

The "current structure and organization of most universities and colleges is largely historical" and "unsuited to new forms of technological delivery" (Bates, 2000, p.36). A range of tensions between existing organizational structures and functions and CMLT project needs emerged as a common theme experienced in a variety of ways. Lack of sufficient institutional and/or departmental support for individual time commitments for developing and sustaining CMLT projects was reported by seven of eight participants in this study and as the most often reported barrier to adoption in the Provincial study (Ekos Research Associates, 2005, p.30). The lack of this necessary support was described by one participant as institutional resistance to recognizing CMLT development work as a legitimate component of the participants' workload. The participant commented, "The appropriate compensation back to the department for the faculty time" was not provided; therefore, "it wasn't a priority. If [CMLT development] was part of my regular job, it would have become a priority, but it wasn't. That is what I mean about these courses being developed on the margins" (FM-7, 30-05-2006). In six projects, participants reported insufficient time for CMLT project work as a result of institutional or departmental priorities remaining focused on more traditional activities, such as classroom teaching (FM-3,

19-05-2006; FM-6, 18-04-2006; FM-7, 30-05-2006), clinical duties (FM-1, 13-06-2006; FM-2, 13-07-2006), and research and publication responsibilities (FM-1, 13-06-2006; FM-2, 13-07-2006; FM-3, 19-05-2006; FM-4, 28-03-2006; FM-7, 30-05-2006). Incongruities among institutional and departmental priorities and faculty members' efforts to adopt CMLTs resulted in divergent goals, rather than "commonly shared principles for decision making aligned with the institution's goals" (Suter, 2001, p. 27). At the mezzo level, the majority of participants perceived an over-emphasis on traditional organizational priorities and goals as impeding successful CMLT adoption.

Participants in this study, as well as those in the Provincial study (Ekos Research Associates, 2005), reported an increased need for ongoing administrative and technical support for micro-level project implementation activities, including deployment of courses into learning management systems at the beginning of new sessions, coping with upgrades to learning management system software packages, and enrollment management. Provision of additional institutional support for these types of activities could mediate faculty members' concerns about expansion of workloads.

In three projects, tensions between bureaucratic and autonomous organizational functions were highlighted as barriers to CMLT development. One participant reported a long struggle with a one-size-fits-all organizational model for CMLT development-team composition of "local expertise," whose members were not perceived to meet departmentally defined CMLT project specifications and associated discipline-based skill sets, as well as incapable of meeting "what some would consider unreasonably tight timelines" (FM-8, 13-04-2006). This participant's department members chose to decline mezzo-level human resources provided by the University in order to secure micro-level control over their CMLT projects. Paradoxically, their choice to

exclude mezzo-level involvement was partially grounded on the need to meet the traditional, mezzo-level organizational goal of generating original research:

> [We wanted take advantage of] the opportunity for data collection to support the research. Having real students in real courses allows us opportunities to conduct research studies. As a Computer Science Department, we sort of have a responsibility to be the leaders in technology and to bring new technology ideas to our local community, as well as our international communities. (FM-8, 13-04-2006)

A faculty member from the Native Studies experienced "an incredible run-in with the union," that resulted in time spent solving a mezzo-level problem that took away from a CMLT project and resulted in a lengthy delay in project completion (FM-5, 16-05-2006).

Aligning the requirements of a cost recovery model in one CMLT project created tensions between meeting the provincial funding body's expectations for project completion timelines and meeting institutional requirements for cost recovery program approval. This tension caused concern for a faculty member, who needed additional time to devise ways to meet the needs predominantly distance learners in a setting organized to meet the needs of on-campus learners:

> You can't just take the courses that are developed for on-campus delivery, and most of them were, and then sell them to people. You have to take into account who the clientele are, and also the context in which you deliver [CMLTs], and tailor the courses to that modality. That takes time. There were some organizational reasons why [team members] couldn't get together. No excuses.

> People developing the courses are academics. They are not always on campus at the same time. That caused delays. (FM-6, 18-04-2006)

Whereas project completion delays were perceived to be problematic, at the provincial (Ekos Research Associates, 2005) and institutional levels (U of S Institutional Plan for Technology-Enhanced Learning, 2004), expanded timelines were perceived by faculty members as necessary for identifying and meeting essential learner needs at the micro project level. This mismatch of timeline expectations may have been a result of variant perceptions of the scope of work undertaken within projects or variant levels of understanding of the cadences of academic careers.

Conversely, examples of differences between relatively slow organizational and necessarily faster individual comfort levels with the pace of change were reported by three participants. One department head commented that in his project, time considerations led him to reject an institutional direction to include the "local campus expertise" because he could not afford to accommodate "waiting on other people's schedules" and retain the ability to complete CMLT projects on time (FM-8, 13-04-2006). One participant reported the "very wearying," "daunting challenge" of getting a new program "approved by committee in the College of Graduate Studies (FM-6, 18-04-2006)," and another commented on having to struggle with "the incredibly slow moving systems of the university" (FM-5, 16-05-2006). These three examples illustrate pace-based tensions between a relatively slow-moving institution and individuals who wished to more quickly affect changes in order to adapt more effectively to the cadence of change in the external environment. If the academy is going to achieve timely flexible adaptation to a constantly changing external environment, then currently centralized leadership models may need to be adjusted to include distribution of leadership autonomy among individuals engaged in

innovation, experimentation, prototyping, and refining CMLTs to adapt in a more timely fashion (Bates, 2000; Mitchell, Walker, & Sackney, 1996; Suter, 2001).

Faculty member's motivations for adopting CMLTs into teaching praxis were focused in three areas: (1) course content development or renewal (FM-1, 13-06-2006; FM-2, 13-07-2006; FM-4, 28-03-2006; FM-5, 16-05-2006; FM-6, 18-04-2006; FM-7, 30-05-2006), (2) enhancing student learning experiences (FM-1, 13-06-2006; FM-2, 13-07-2006; FM-3, 19-05-2006; FM-5, 16-05-2006; FM-7, 30-05-2006; FM-8, 30-05-2006), and (3) responding to departmental initiatives (FM-3, 19-05-2006; FM-4, 28-03-2006; FM-6, 18-04-2006; FM-7, 30-05-2006; FM-8, 30-05-2006). This finding suggests that opportune times to encourage CMLT adoption among faculty members may occur during departmental curriculum renewal initiatives and/or program accreditation activities, which focus attention on the quality of student experiences. Taking advantage of these temporally strengthened alignments of individual and organizational goals could contribute to providing sufficient support for individual efforts in CMLT adoption.

The macro, Provincial funding body, and the mezzo, University e-learning leadership, teams have identified a programmatic focus for future TEL-sponsored CMLT projects (Ekos Research Associates, 2005; U of S Institutional Plan for Technology-Enhanced Learning, 2004). In this study, both instructional design (ID-1, 18-05-2005; ID-2, 18-05-2005; ID-4, 18-05-2005; ID-7, 18-05-2005; ID-8, 05-08-2005) and faculty (FM-6, 18-04-2006; FM-7, 30-05-2006) participants reported particular challenges in managing the complexities of large programmatic development teams. These challenges include an expanded time commitment required to establish trust among members (FM-6, 18-04-2006; ID-1, 18-05-2005; ID-4, 18-05-2005; ID-8, 05-08-2005), to achieve consensus on team goals (FM-6, 18-04-2006; FM-7, 30-05-2006; ID-8, 05-08-2005), and to define individual roles and responsibilities for team members (FM-4, 28-03-

2006; ID-1, 18-05-2005; ID-3, 18-05-2005). Changes in team membership (FM-7, 30-05-2006; ID-1, 18-05-2005; ID-3, 18-05-2005), provision of allowances for the cadences of academic lives (ID-5, 18-05-2005; FM-6, 18-04-2006; FM-7, 30-05-2006), and sustaining team members' commitments to long-term development cycles (FM-7, 30-05-2006; ID-5, 18-05-2005) were identified as particular concerns in large development teams. As these concerns emerged, and sometimes created difficulties at the micro project level, plausible solutions may be most easily identified by individuals involved at the micro level.

The sense that variant team members make of other team members' divergent concerns are "inextricably linked to the… particular physical, psychological, social, and cultural contexts" (Sackney & Mitchell, p. 900) of individual project team members' "life spaces" within project timeframes (Lewin, 1951, p. 240), and therefore, require a dynamic of team-based "negotiation" (Guba & Lincoln, p. 8). A distributed approach to leadership (Knapper, 2006), which allows large, programmatic teams to resolve team-specific challenges and concerns—via internal negotiation of members' multiple life spaces and their associated perspectives—may produce more effective and timely results than can be achieved by consistently applying macro- or mezzo-level policies or procedures to project-specific obstacles to successful completion.

In two programmatic development teams, curricular standardization was identified as a source of tension between full-time faculty members and sessional lecturers (FM-5, 16-05-2006; FM-7, 30-05-2006; IDs-2 & 4, 18-05-2005). This tension was reported as a source of debates about relative levels of academic freedom, based upon institutionally sanctioned levels of individuals' employment status (FM-5, 16-05-2006). These debates contributed to expanded project-completion timelines, and may have undermined the departmental support for completing two CMLT projects (FM-7, 30-05-2006; ID-8, 05-08-2005). It would be interesting to

investigate perceptions of variant degrees of academic freedom associated with academic employment status within the University, and potentially associated consequences of variations among individuals' levels of commitment to the success of CMLT projects.

Organizational Cultures

Organizational culture has been defined as a collage of ephemeral phenomena, including "values, beliefs, assumptions, perceptions, behavioral norms, artifacts, and patterns of behavior," each of which contribute to "meaning, direction, and mobilization" (Shafritz & Ott, 2001, p. 361). In some collegial contexts, in this study, skepticism, fear, and a misunderstanding of technology enhanced learning were identified as cultural barriers to CMLT adoption. Variant levels of tolerance for experimentation, innovation, and associated uncertainty, regarding the quality and effectiveness of CMLT innovations, were reported by participants. In three Colleges, participants reported encountering skepticism (FM-6, 18-04-2006) and fear (FM-2, 19-05-2006; FM-5, 16-05-2006) of CMLT adoption among their colleagues. One department head commented, "You always need to know how these things work. It is an empirical question about whether students can get interested in this way of learning" (FM-7, 30-05-2006). In a third setting, a participant reported the development of a sense of Departmental "synergy" that resulted from shared "enthusiasm" among "the individuals involved" in combined CMLT development and educational effectiveness research activities. Comparatively, 48 percent of faculty members who responded to the Provincial survey, identified "concerns that TEL undermines the quality of teaching and learning" as a barrier to adoption (Ekos Research Associates, 2005, p.30). These data suggest a rather pervasive perception that not enough is known about the quality or effectiveness of teaching with technology. This perception could be

mediated with the provision of resources for research activities as core components of design and development projects.

Institutionally supported opportunities for information-sharing across disciplines and colleges of the results of research activities may also mediate anxiety or skepticism and promote "cross-fertilization" of effective approaches to integrating research and CMLT adoption into teaching. Dissemination of information from early adopters experiences (Hagner & Schneebeck, 2001) of lessons learned in the initial 2000-2005 TEL-funded CMLT implementation phases to the broader faculty communities across the institution may support later adopters in their efforts to achieve similar goals. Further investigation into how to effectively share knowledge and experience could identify processes that specifically support the needs of later technology adopters.

From a postmodern perspective, "reflexivity, rather than reason, is the process that postmodern thinkers advocate for coming to a deeper sense of the kind of world we are personally constructing with our words" (Sackney & Mitchell, 2002, p. 890). A *deeper sense* of the issues involved in e-learning initiatives in traditional universities involves an analysis of potential impacts on the poly-cultural nature of the academy. For example, I, as the researcher in this study, have observed college-specific cultural differences in the application of Provincial TEL funding to support variant forms of distributed learning. Efforts directed toward expanding existing services to support a broader range of learners with increased expectations for flexible, distributed access to higher education (Archer, Garrison, and Anderson, 1999; Daniel & Mohan, 2004) are evident in, for example, some of the University's undergraduate programs in Arts and Science (Ekos Research Associates, 2005; U of S Institutional Plan for Technology-Enhanced Learning, 2004) and Nursing (ID-4, 18-05-2005). Graduate programs in Education and

Interdisciplinary Studies have adopted distributed learning solutions in order to support mid-career professionals who cannot afford to interrupt their careers, yet need access to advanced educational opportunities (FM-3, 19-05-2006; FM-6, 18-04-2006).

However, the collegial cultures of the Colleges of Medicine, Dentistry, and Veterinary Medicine, tend to focus e-learning projects on virtual laboratories or simulations designed to enhance learning experiences for traditional, campus-based learners. In these colleges, requirements for continuous student engagement—working with faculty members in campus-based clinics and teaching hospitals—currently limit the scope of useful applications of distributed learning. Because faculty and learner needs vary across collegial contexts, it is unlikely that any "one-size-fits-all" (FM-8, 13-04-2006) approach to the construction or implementation of a University e-learning strategy can be effective.

"Theory and practice [must be] inseparable, and "useful theories are those that have the potential to offer new alternatives to the present culture'" (Mitchell, Walker, & Sackney, 1996, p. 50). Given the variance in learners' life spaces and associated needs, across collegial contexts, an inclusive, stakeholder-sensitive approach to multiple CMLT project development options ought to be explored in an action-oriented and culturally sensitive approach. The sense that CMLT project team members make of emergent challenges, underpinned by pluralistic value constructions among members "are inextricably linked to … [the] particular physical, psychological, social, and cultural contexts" (Guba & Lincoln, p. 8) of individual projects. For example, variant levels of commitment to the provision of services to off-campus learners from the macro, mezzo, and micro perspectives have surfaced in this study. At the macro level, the Provincial funding body identifies a core goal of the TEL Action Plan as increasing rural and

Northern learners' "access to post-secondary education through effective use of technology" (Ekos Research Associates, 2005, p. 2).

At the micro level, one faculty member described his primary motivation for involvement in a TEL-sponsored CMLT project as an opportunity to conduct e-learning research:

> That research, in order to be most valuable, needs to be grounded in the reality that only building real courses and [the challenges that] delivering those courses actually presents for us. [We wanted take advantage of] the opportunity for data collection to support the research. Having real students in real courses allows us opportunities to conduct research studies. (FM-8, 13-04-2006)

This faculty member noted that provision of access to learning for off-campus students was "a secondary goal from the Department's perspective. Not so much mine personally, but from the perspective of the Department, this is a good benefit from an online component" (FM-8, 13-04-2006).

In another project, the initial motivation for a faculty member's motivation for adopting CMLTs was exclusively to serve the continuing education needs of off-campus professionals, but once the project was underway, project goals were expanded to support on-campus students:

> It then grew because we realized that this isn't just a continuing education piece. This is a student education piece. And then, of course, we began to realize that there are other things we can do. We can put more of the curriculum and the operative teaching program into this vehicle. (FM-1, 13-06-2006)

In a third TEL project, variant levels of commitment to off-campus learners surfaced between micro and mezzo actors:

> This course has got to be offered to those people in our outlying communities. That is my next job. Unfortunately, I don't think the University is backing me on this one. They are eliminating the Extension Division. In the off-campus courses, they have decided to promote televised, and not Web courses. (FM-5, 16-05-2006)

Given this snapshot of a range of value constructions that can underpin faculty motivations for the integration of CMLTs into teaching praxis, a single University e-learning strategy may be insufficient. Customized versions of an e-learning strategy, which respond to individual College or Department cultures, may need to be negotiated.

Organizational Economies (Institutional Reward Systems)

The most often reported barrier to integrating CMLTs into teaching practice, in this study, was the lack of institutional recognition of and rewards for significant time investments (FM-1, 13-06-2006; FM-2, 13-07-2006; FM-3, 19-05-2006; FM-4, 28-03-2006; FM-6, 18-04-2006; FM-7, 30-05-2006). As participants' reports of the lack of return on investment for time committed to CMLT adoption align closely with data from the Provincial review, where lack of faculty time "to develop and/or integrate technology into instruction (76 percent)," and "a lack of institutional incentives or recognition for faculty who participate in technology enhanced learning (60 percent)" as "large" institutional barriers (Ekos Research Associates, 2005, p. 30), resolving this dilemma appears to be a critical strategic direction for university administration.

Two specific changes to current policies could contribute to a viable solution. First, aligning tenure and promotion criteria to become more inclusive "in determining legitimate [scholarly] activities" (Olcott & Schmidt, 2000, p. 265) via recognizing the adoption of CMLTs into teaching praxis as a legitimate scholarly activity could promote wider adoption. Secondly,

relaxing CMLT intellectual property policies to address faculty concerns about fair returns on investment could remove a pervasive barrier (Tallman, 2000). As "concerns about intellectual property and copyright" were reported as a barrier to adoption by 59 per cent of faculty in the provincial survey (Ekos Research Associates, 2005, p. 30), maintaining this policy appears to be counter productive.

CMLT adoption transforms traditional, place-based learning experiences into computer-mediated communications and interactions among faculty and learners that focus on the use and exchange of electronic artifacts. Participants in this study reported an institutional policy, claiming university ownership of the intellectual property in CMLT artifacts, which faculty members found problematic (FM-3, 19-05-2006; FM-7, 30-05-2006). The exchange of electronic artifacts, which have associated and potentially competing ownership claims, could be perceived as systemic disputes over salable commodities (Bok, 2003; Tallman, 2000). Students' interpretations of CMLT-based learning opportunities as a cultural experience that involves exchanges of electronic artifacts of intellectual property that may be perceived as purchasable commodities could be a topic of interest for future research that could have an influence on student perceptions of academic honesty.

Finally, fiscal policies for delivery of online CMLT artifacts in the Province's regional colleges do not appear to have a viable business model:

> Provincial funding formulae complicate off-campus delivery opportunities. Under the current system, regional colleges are fiscally disadvantaged if they deliver completely Web-based courses.

> [The colleges] are paid so much for the space, so much money for the teacher, and they get so much money for offering the course, so they make about 30 per cent. So when they offer a Web course, there is no structure to pay the College. We don't necessarily need a [college-based] facilitator. We don't necessarily need a lab. If the students are able to access a computer, and the whole course is online, there is no requirement to be anywhere. [Students] can do this thing from [their] home or from work. So when they offer a Web course, there is no structure to pay the College. (FM-5, 19-05-2006).

Further investigation into viable business models for regional colleges' delivery of online courses could support broader off-campus use of e-learning artifacts to support learners in rural and northern communities. Given that supporting learners in rural and northern communities is one of four of the primary purposes for continued funding of the TEL-sponsored CMLT development program, an exploration of alternative business models for regional college delivery of online courses may be a worthwhile endeavor.

Pedagogical Praxis

Study participants who had completed their CMLT projects and implemented the resulting technologically mediated learning environments consistently reported CMLT project development as having had a broader influence on the scholarship of their teaching. However, reports of specific influences varied across disciplinary settings. A participant from the Department of Computer Science noted that CMLT development positively influenced the use of tutorials in both technology enhanced learning and classroom-based teaching settings (FM-8, 13-04-2006). A participant from a social science department commented that department members' motivations' for becoming involved in CMLT development included an intent to "reintroduce

weekly tutorials" (FM-7, 30-05-2006). Participants from Native Studies and Education described the benefits of online discussions in achieving affective learning outcomes, i.e., promoting desirable changes to attitudes or interpretations of experiences (FM-3, 19-05-2006; FM-5, 16-05-2006). Online discussions were credited with promoting reflective and critical learning opportunities for students (FM-3, 19-05-2006) to "internalize the issues," "deal with them," and come to their "own conclusions" (FM-5, 16-05-2006). Participants from the Colleges of Dentistry and Veterinary Medicine stated goals for their students to become independent learners through the use of CMLT self-study modules (FM-1, 13-06-2006; FM-2, 13-07-2006). Through identifying curricular components, which the instructor deemed appropriate for self-study, one faculty member saw an opportunity to free up classroom time for "approaching some of the more turgid types of readings…in small groups where there is a very individual, mentorship type process" (FM-1, 13-06-2006). A second instructor found, the effectiveness of student performance in a medical exercise improved when students engaged in self-study, rather than attending a traditional demonstration of the exercise (FM-2, 13-07-2006).

An implication of these findings is that CMLT projects, designed to meet an existing need or solve an existing problem situated within particular disciplinary setting, may have surfaced evidence or a deeper sense of understanding (Sackney & Mitchell, 2002) that has potential for broader pedagogical application. For example, lessons learned about the successful design and implementation of tutorials that can serve both online and classroom-based learners may be applicable beyond science- and social science-related disciplines. Lessons learned about the use of peer-to-peer discussions to achieve affective learning outcomes could be as valuable in other settings as they have been in Education and Native Studies. Dissemination of medical science criteria for selecting appropriate curricular content for self-learning modules could be

adapted to serve other disciplines. Combined, these findings suggest the identification of existing needs and problems that occur across disciplines can open interdisciplinary discourses on effective pedagogical innovations. Each of these propositions provides a potential avenue for further study into actualization of the professionalization of teaching in higher education (Bates, 2000).

Revisiting Lewin's Policy Field

Lewin's (1951) policy field has been a useful framework for examining economic and "social conditions influencing and being influenced by individual "goals, needs, stimuli, [and] social relations" (p. 241) within an e-learning policy field for the academy. Emergent driving economic and social forces, rooted in the knowledge economy and global learning society, are exerting pressures for increased, flexible, and personalized access to learning opportunities within the academy. The integration of CMLTs into teaching praxis in the context of higher education may be an effectual organizational response to these pressures.

The academy in this study may be at the boundary between Lewin's (1951) *unfreezing* and *moving* stages in the process of shifting from an organizational focus on traditional place-based learning to include more flexible options for learners. The 2000-2005 implementation of the Technology Enhanced Learning Action Plan at this university has destabilized the status quo. At this time, efforts are underway to identify and evaluate available e-learning policy options, further contributing to the unfreezing of the organization and providing potential movement in the culture of learning and teaching on campus.

An Area for Further Investigation

This study has examined organizational structural, cultural, pedagogical, and economic (reward system) elements of a traditional research-oriented university for influences on faculty

adoption of computer-mediated learning technologies. Findings for each of the four organizational elements have been presented as independent fields of inquiry. It is possible that one or more of these four fields of inquiry may interact with a combination from among the other three to create stronger or more pervasive driving or restraining forces for the integration of computer-mediated learning technologies into educational praxis. It would be interesting to investigate, if or to what extent, each element has the potential to intact with other elements to produce heightened or lesser influences, within or across collegial or institutional contexts, on faculty members' decision-making processes associated with the integration of computer-mediated learning technologies into educational praxis.

Closing Commentary

"Rapid technological development and economic globalization are requiring [universities] … to redefine the purposes and functions of higher education" (Nesbit, 2004, p.104). The convergent influences of the knowledge age, the new economy and its information technology paradigm (Alclay, 2003; Norton, 2000; O'Driscoll, 2003) have created pressures on this Province's universities to expand existing services to support a much broader range of learners (MacKay, 1996) via multi-modes of delivery. Flexible access to higher education has become an economic necessity.

The Province of Saskatchewan is challenged by and benefits from a diverse population, thinly spread across a wide and rich geographical setting. The government of the Province of Saskatchewan recognized the need for more flexible access to higher education by its adult citizenry and responded to that need with the 2000-2005 deployment of the TEL program. The use of computer mediated learning technologies has begun to mediate geographical and economic isolation from learning opportunities through supporting a small initial group of adult

learners in rural and northern communities (Ekos Research Associates, 2005). Evidence suggests that the use of CMLTs can also support on-campus students in achieving *some learning goals* in more effective ways than traditional classroom-based teaching (Abutarbush, et al., 2006; Naylor, 2005). An institutional e-learning strategy could outline the criteria to determine if, when, and how faculty efforts can effectively and equitably support variant educational and economic aspirations this province's diverse citizenship in the challenge of meeting the accelerated pace of change in a global learning society.

Removing barriers by providing appropriate support for faculty members in their efforts to adopt CMLTs is a precondition to achieving this enterprise. CMLT development needs to be brought *in from the margins* to become a core activity within the academy, which is recognized, normalized, and rewarded in parity with other core activities.

As the University begins the second-round (next 5-year phase) of involvement in the TEL program, more questions than answers about how to encourage faculty adoption of CMLTs into teaching praxis have come to the fore. In the broader contemporary context, marked by "exceptional complexities" in the "institutional social, political, and economical nature of learning" (Wasson, 2006), it will be interesting to observe how this institution's e-learning strategy evolves.

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Appendix A

Ethics Proposal

Application for Approval of Research Protocol

Submitted to the *Behavioural Research Ethics Board*

RESEARCHER: **Gale Parchoma B.Ed. B.A. (Hons) M.A. (Doctoral Candidate)**

Department of Educational Administration

SUPERVISOR: Dr. Patrick Renihan

Department of Educational Administration

CO-SUPERVISOR: Dr. Richard Schwier

Department of Curriculum Studies

DATA COLLECTION **START DATE:** April 7, 2005

COMPLETION DATE: September 1, 2006

TITLE OF STUDY: Commodifying the Academy

ABSTRACT: The purpose of the study is to examine the influences of computer-mediated learning technologies (CMLTs) on four continua of university praxis: cultures, pedagogies, economies, and organizational structures and policies. An attempt will be made to discern the driving and restraining forces that influence the adoption of CMLTs by faculty members in a traditional research university, and to determine if or to what extent university policies and practices are aligned to support the successful design, development, and implementation of CMLTs.

FUNDING: This study is self-funded.

PARTICIPANTS: Two groups of participants will be recruited for this study.

Group 1: The first group of participants will be recruited from the Instructional Design Group (IDG) within the Extension Division at the University of Saskatchewan. As project leaders in the Campus Saskatchewan Technology Enhanced Learning (TEL) projects, IDG members have significant insight into the history of the TEL initiative; therefore, this group is a rich source of information for the study.

I, as researcher, am also a member of IDG, and do have working relationships with each of its members. However, I do not hold a position of power within this group; the members are my peers. Further, the questions that I have prepared for the IDG group are non-invasive of their privacy and non-evaluative of their professional practice.

See the Appendix B for a letter of invitation and consent form for members of the instructional design group.

Group 2: The second group of participants will be recruited from faculty members at the University of Saskatchewan who have been involved in the TEL initiative. As an instructional designer, I also have working relationships with some members of this group. However, I do not hold a position of power among its members; they are my colleagues. Further, the questions that I have prepared for the faculty group are non-invasive of their privacy and non-evaluative of the scholarly work.

See Appendix C for a letter of invitation and consent form for faculty members who are invited to participate in the study.

CONSENT: The consent form is contained in the final sections of Appendices B and C. Participants attest, using that form, that they have read and understood the description of the study provided, have been provided with an opportunity to ask questions, and have had their questions satisfactorily answered. Participants from Groups 1 and 2 provide their consent to participate in the study as described and confirm that they understand that they may withdraw this consent at any time without penalty. Participants are provided with a copy of the signed consent form for their own records. Consent forms will be kept separate from participant information.

METHODS: Data will be collected using semi-structured focus groups and semi-structured individual interviews, as well as document analysis. One focus group consisting of between four and six participants will be conducted with members of the instructional design group.

Transcripts will be generated from the audio recording of the focus group discussion. Transcripts will be returned to participants for their review. Participants will have the opportunity to add, delete revise information in their transcripts. Participants will receive transcript release forms. Data from the instructional design group focus group will be used to determine if there is a typology of computer-mediated learning technology projects; and therefore, serve to inform the researcher's selection of invited participants in the remainder of the study.

Approximately six faculty members who have been involved in computer-mediated learning technology initiatives will be interviewed and transcripts will be generated. Transcripts will be returned to participants for their review. Participants will have the opportunity to add, delete revise information in their transcripts. Participants will receive transcript release forms. An electronic survey will be generated to garner further information on topics identified in the faculty interviews. A final focus group will be conducted by the researcher and will be audio-taped. Transcripts will be returned to participants for their review. Participants will have the opportunity to add, delete revise information in their transcripts. Participants will receive transcript release forms.

See Appendix D for the instructional design focus group protocol.

See Appendix E for the faculty interview protocol.

STORAGE OF DATA: Transcription will be done by the researcher. Transcripts will be stored on the password-protected file server of the University of Saskatchewan, on the password-protected hard drive of a personal computer in the office of the researcher, and on disk. Survey information will be gathered as attachments to email messages in password-protected messaging software on the researcher's office computer. Attachments will be stored separately from email responses. A back-up copy of the surveys will be stored on disk. This disk will be stored in the office of the researcher for the duration of the study. Paper copies of the survey responses will be stored in the office of the researcher for the duration of the study. A copy of transcripts, audio recordings, and survey information will be stored at the University of Saskatchewan in the office of Dr. Patrick Renihan for five years following the completion of the study. After five years, the data will be destroyed.

DISSEMINATION: The data that is collected is intended for use in the doctoral dissertation of the researcher. A secondary intent is to use the data and findings in conference presentations, journal articles, and other scholarly works.

RISK OR DECEPTION: Participants will not be deceived in the course of the study. Risk due to the limits in the ability to guarantee confidentiality in focus group settings will be managed in the manner addressed in the next section of this application.

CONFIDENTIALITY: Pseudonyms will be used in transcription and reporting of the data. However, because some of the data will be collected using focus groups, the researcher's ability to ensure confidentiality and anonymity of data is limited.

Focus group participants will be informed that there are limits to which the researcher can ensure the confidentiality of the information shared in focus groups. As a condition of participation, participants will sign a consent form acknowledging responsibility and agreement to protect the integrity and confidentiality of what others in the group have said during the focus group discussion.

See the sections on confidentiality contained in Appendix B and C.

As the survey data will be returned to the researcher in a way that potentially identifies the participant (i.e., questionnaires are returned by attachments to email messages), there is a potential loss of anonymity. As the researcher's email program is password protected, no other individual will be able to collect a message received from a participant. The researcher will store responses in a password-protected partition of her computer during the data collection and analysis phase of the study. At the close of the study, the researcher will ensure that all identifying information has been removed before she prints survey responses. Printed survey responses will be securely stored after they have been separated from their accompanying email messages.

DATA/TRANSCRIPT RELEASE: Participants will be given the opportunity to add, delete, and change the final transcript. Participants will receive a copy of the transcript with their own statements highlighted and their own pseudonym identified. Transcripts will be stored separately from the list of pseudonym. Participants will have the right to withdraw at any time any or all of their responses at any time without penalty. The data will be destroyed after five years. Participants will be asked to sign a transcript release form. Transcript release forms and transcripts will not be stored together to ensure confidentiality.

See Appendix F for the transcript release form.

DEBRIEFING AND FEEDBACK: At the conclusion of each focus group and interview and through correspondence attached to transcripts for review, participants will be reminded of next steps that will be taken in the study and will be invited to ask questions of the researcher. Questions or comments will be invited at any time and participants will have the necessary information to contact the researcher, the Department of Educational Administration, and the Office of Research Services at the University of Saskatchewan.

Participants will be alerted to the availability of the dissertation when it is complete. Participants will be able to review the dissertation in the Office of Educational Administration.

Required Signatures:

Student _____ Date: _____

Gale Parchoma

Supervisor _____ Date: _____

Dr. P. Renihan

Co-supervisor _____ Date: _____

Dr. R. Schwier

Department Head

_____ Date: _____

Contact Information

Gale Parchoma

T: 966-1805

F: 966-1687

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Room 210 Williams Building

221 Cumberland Ave.

Saskatoon, SK.

S7N 1M3

Appendix B

Instructional Design Participant Consent Form

Behavioural Research Ethics Board (Beh-REB)

Invitation to Participate / Consent Form for a Research Study – Instructional Designers

Dear instructional designer,

My name is Gale Parchoma and I am a doctoral student in the Department of Educational Administration in the College of Education at the University of Saskatchewan.

I wish to invite you to participate in a study entitled: *Commodifying the Academy*. Please read this form carefully, and feel free to ask questions you might have. You may contact me at 306-966-1805 or by e-mail at gale.parchoma@usask.ca. Members of the instructional design group are asked to participate in the initial phase of the study in order to provide the researcher with their expertise on whether or not types of design and development projects influence levels of adoption of computer-mediated learning technologies.

I will facilitate a focus group using the attached questions as a general guide. The group will range in size from four to six instructional designers and the 45 to 60 minute discussion will be audio-taped. Participants may request that the recording device be turned off at any time.

The purpose of the study will be to examine the influences of computer-mediated learning technologies on four continua of university life: cultures, pedagogies, economies, and organizational structures and policies. An attempt will be made to discern the driving and restraining forces that influence the adoption of computer-mediated learning technologies by faculty members in a traditional research university, and to determine if or to what extent university policies and practices are aligned to support the successful design, development, and implementation of computer-mediated learning technologies.

Within six weeks of our meeting, you will be asked to review the typed transcript of our discussion. You may add, alter, or delete information from the transcript as you see fit.

The data from this study will be used in the completion of a doctoral dissertation. The data may also be published and presented at conferences. To safeguard your confidentiality and anonymity, you will be given a pseudonym, and all identifying information such as the department to which you belong will be removed.

Because the participants for this study have been selected from among instructional designers, you may be known to other people in the focus group or identifiable to others on the basis of what you have said. As the researcher, I will undertake to safeguard the confidentiality of the discussion, but cannot guarantee that other members of the group will do so. Please respect the

confidentiality of the other members of the group by not disclosing the contents of this discussion outside the group, and be aware that others may not respect your confidentiality.

Should you wish to comment on some aspect of the focus group's discussion or to offer information that you felt was of a confidential nature but could be meaningful for this study, you will be given the opportunity to arrange for an individual interview with me at the end of the focus group interview, or by contacting me at a later time, and will need to complete a similar but separate consent form at that time.

The audio recordings and transcripts of our discussion will be stored at the University of Saskatchewan as will your contact information. These data will be stored in the office of my supervising professor, Dr. Patrick Renihan for five years, after which time they will be destroyed.

You may withdraw from the study for any reason, at any time, without penalty of any sort. If you withdraw from the study at any time, any data that you have contributed will be destroyed.

My supervisors for this study are Dr. Pat Renihan, Department of Educational Administration (T: 306-966-7619), Richard Schwier, Curriculum Studies (T: 306-966-7641), College of Education, University of Saskatchewan.

If you have any questions concerning the study, please feel free to ask at any point; you are also free to contact me at the number and e-mail address provided above if you have questions at a later time. Should you wish to contact my supervisors, their contact information is included above. This study has been approved on ethical grounds by the University of Saskatchewan Behavioural Science Research Ethics Board on April 19, 2005. Any questions regarding your rights as a participant may be addressed to that committee through the Office of Research Services (966-2084) at the University of Saskatchewan

When the dissertation is complete, a notice will be sent to each participant about how to access the document from the University of Saskatchewan library or other sources.

Consent to participate

I have read and understood the description provided above; I have been provided with an opportunity to ask questions and my questions have been answered satisfactorily. I consent to participate in the study described above, understanding that I may withdraw this consent at any time. A copy of this consent form has been given to me for my records.

_____ _____

Signature of Participant Date

_____ _____

Signature of Researcher Date

Appendix C

Faculty Members Consent Form

Behavioural Research Ethics Board (Beh-REB)

FACULTY CONSENT

Dear faculty member,

My name is Gale Parchoma and I am a doctoral student in the Department of Educational Administration in the College of Education at the University of Saskatchewan.

My supervisors for this study are Dr. Pat Renihan, Department of Educational Administration (T: 306-966-7619), Richard Schwier, Curriculum Studies (T: 306-966-7641), College of Education, University of Saskatchewan.

I wish to invite you to participate in a study entitled: *Commodifying the Academy.* Please read this form carefully, and feel free to ask questions you might have. You may contact me at 306-966-1805 or by e-mail at gale.parchoma@usask.ca

The purpose of the study will be to examine the influences of computer-mediated learning technologies on four continua of university life: cultures, pedagogies, economies, and organizational structures and policies. An attempt will be made to discern the driving and restraining forces that influence the adoption of computer-mediated learning technologies by faculty members in a traditional research university, and to determine if or to what extent university policies and practices are aligned to support the successful design, development, and implementation of computer-mediated learning technologies.

Your participation in this study will require approximately five hours of your time over the course of one year. The first stage of the study will require approximately two hours: one for an interview and another for your review of the interview transcripts. The second stage of the study will require approximately one hour of your time to complete an electronic survey. The final stage of the study will take approximately two hours of your time, one of which you will be invited to participate in a members' check focus group session.

I will conduct the first-stage interviews, manage the electronic surveys, and facilitate the focus group session, using the attached questions as a general guide. The first-stage interview will range from 45 to 60 minutes and will be audio-taped. Participants may request that the recording device be turned off at any time.

Within six weeks of our interview meeting, you will be asked to review the typed transcript of our discussion. You may add, alter, or delete information from the transcript as you see fit.

I will distribute the electronic survey via an email attachment. As the survey data will be returned to me in a way that potentially identifies participants (i.e., questionnaires are returned by email), I must warn you about the potential loss of anonymity. As my email program is password protected, no other individual will be able to collect a message received from you. I will store your response in a password-protected partition of my computer during the data collection and analysis phase of the study. At the close of the study, I will ensure that all identifying information has been removed before I print your survey response. Printed survey responses will be securely stored, along with other data gathered in this study.

The focus group session will be approximately 45-60 minutes long and will be audio-taped. Participants may request that the recording device be turned off at any time.

Within six weeks of the focus group session, you will be asked to review the typed transcript of our discussion. You may add, alter, or delete information from the transcript as you see fit.

The data from this study will be used in the completion of a doctoral dissertation. The data may also be published and presented at conferences. To safeguard your confidentiality and anonymity, you will be given a pseudonym, and all identifying information such as the college and department to which you belong will be removed.

Because the participants for this study have been selected from among University of Saskatchewan faculty members, you may be known to other people in the focus group or identifiable to others on the basis of what you have said. As the researcher, I will undertake to safeguard the confidentiality of the discussion, but cannot guarantee that other members of the group will do so. Please respect the confidentiality of the other members of the group by not disclosing the contents of this discussion outside the group, and be aware that others may not respect your confidentiality.

Should you wish to comment on some aspect of the focus group's discussion or to offer information that you felt was of a confidential nature but could be meaningful for this study, you will be given the opportunity to arrange for an individual interview with me at the end of the focus group interview, or by contacting me at a later time, and will need to complete a similar but separate consent form at that time.

The audio recordings and transcripts of our discussion will be stored at the University of Saskatchewan as will your contact information. These data will be stored in the office of my supervising professor, Dr. Patrick Renihan for five years, after which time they will be destroyed.

You may withdraw from the study for any reason, at any time, without penalty of any sort. If you withdraw from the study at any time, any data that you have contributed will be destroyed.

If you have any questions concerning the study, please feel free to ask at any point; you are also free to contact me at the number and e-mail address provided above if you have questions at a later time. Should you wish to contact my supervisors, their contact information is included above. This study has been approved on ethical grounds by the University of Saskatchewan Behavioural Science Research Ethics Board on April 19, 2005. Any questions regarding your rights as a participant may be addressed to that committee through the Office of Research Services (966-2084) at the University of Saskatchewan

When the dissertation is complete, a notice will be sent to each participant about how to access the document from the University of Saskatchewan library or other sources.

Consent to Participate

I have read and understood the description provided above; I have been provided with an opportunity to ask questions and my questions have been answered satisfactorily. I consent to participate in the study described above, understanding that I may withdraw this consent at any time. A copy of this consent form has been given to me for my records.

_____ _____

(Signature of Participant) (Date)

_____ _____

(Signature of Researcher) (Date)

Appendix D

Instructional Design Focus Group Protocol

Instructional Design Focus Group Protocol

I wish to thank you for agreeing to participate in this study. If at any time you wish to withdraw, please let me know. You can reach me by telephone (306) 966-1805 or by email at gale.parchoma@usask.ca. Participants may request that the recording device be turned off at any time. Should you choose to withdraw all data you have provided will be removed from this study. As well, I need to remind you of the importance of maintaining the confidentiality of all information shared by this group.

Before we proceed, I would like to provide you with a focus for our discussion. I will be posing a series of semi-structured questions about the TEL projects you have led in order to explore the possibility of there being a typology of projects.

1. Do you perceive patterns in the projects you manage?
2. Are there differences between projects designed for:
    a. Undergraduate and graduate learners?
    b. Science versus social science or humanities programs?
    c. Tenured versus non-tenured instructors?
3. Are there project types that can be defined using other distinguishing features?
4. I invite you to add comments about project types that my questions have not addressed.

Appendix E

Faculty Interview Protocol

Faculty Interview Protocol

I wish to thank you for agreeing to participate in this study. If at any time you wish to withdraw, please let me know. I would like to remind you that you may request that the recording device be turned off at anytime. You can reach me by telephone (306) 966-1805 or by email at gale.parchoma@usask.ca. Should you choose to withdraw all data you have provided will be removed from this study.

Before we proceed, I would like to provide you with a focus for our discussion. I will be posing a series of semi-structured questions about your TEL project(s) in order to explore the your experiences with the TEL initiative.

1. What motivated you to become involved in the CMLT development initiative?
2. Please tell me your story about being involved in the CMLT project(s).
3. Were your expectations met?
4. What personal, departmental, or institutional enabling or restricting elements have you encountered that facilitated or inhibited your project's success?
5. I invite you to add comments about your project(s) that my questions have not addressed.

Appendix F

Transcript Release Form

Research Ethics Boards (Behavioural and Biomedical)

TRANSCRIPT RELEASE TEMPLATE

Data/Transcript Release Form:

I,_____, have reviewed the complete transcript of my personal interview in this study, and have been provided with the opportunity to add, alter, and delete information from the transcript as appropriate. I acknowledge that the transcript accurately reflects what I said in my personal interview with [name of the researcher]. I hereby authorize the release of this transcript to [name of the researcher] to be used in the manner described in the consent form. I have received a copy of this Data/Transcript Release Form for my own records.

_____ _____

(Participant) (Date)

_____ _____

(Researcher) (Date)