

**EDUCATION LIMITED:
FRAMING POSSIBILITIES AND CONSTRAINTS OF ONLINE TEACHING IN
A UNIVERSITY COURSE**

by

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ABSTRACT

How much influence and control do instructors have when they teach online? How creative can they be and what limits do they encounter? Teaching via the internet can be a creative and engaging process that allows for innovative approaches to learning for students from all over the world. It can also be a challenging setting for instructors and students to teach and learn. This study investigated how instructional processes in an internet-based course were shaped by factors beyond the instructor's control?

Frame factor theory was used as the conceptual framework to identify and analyze factors that shape instruction. The unique contribution of this study is to examine an online setting. Thus, most of this research is about how institutional and technological frames shape teaching.

Documents were analyzed from an online graduate course to identify and analyze frame factors. Policy documents of a distance teaching unit, course design documents and the archived course discussion forum were examined.

The research indicates that class size, instructor role and accountability, the assessment criteria, course content and methods of teaching online were all factors decided by the host organization before an instructor began teaching. Technological factors also shaped instruction beyond an instructors control, including: the technology required to access the course, place-independent access to the course, the nature of asynchronous communication and the nature of text-based communication. Text-based asynchronous communication highlighted students writing styles, allowed for the use of quotes and references, allowed for thoughtful, reflective communication but also created concerns about lurkers and workload.

These findings from the research were used to create an analytical framework, a tetrad, conceived as a series of questions. The questions are meant to guide decision-making by instructors and planners of internet-based courses. The four questions are:

- 1) What teaching decisions does the organization make before you, the instructor, begin the class?

- 2) How will the technology affect people's participation level and their quality of interaction?
- 3) How much accountability is 'built-in' to the communication?
- 4) How labour-intensive is the medium?

The tetrad has been conceived so it may be applicable to all internet-based teaching, even as the medium continues to change.

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Finally, I came to Adult Education because of a book by a Brazilian author I picked up over ten years ago at Broadway Books in Saskatoon. When I began this program Paulo Freire was still alive. He has since passed away, and I hope that after finishing I can remember the spirit and content of his work as I continue.

CHAPTER 1
THE PROBLEMS OF INTERNET-BASED TEACHING

But the key question for people is not about their own authorship; I can only answer the question "What am I to do?" if I can answer the prior question, "Of what story or stories do I find myself a part?"

*Alisdair MacIntyre
After Virtue*

Adult educators plan and instruct educational programs but not in circumstances of their choosing. There are many different ways to organize adult learning through educational programs in formal and non-formal settings. Different educational contexts can make immense differences in how adults learn. Even many radical adult educators or learners find their methods constrained when they work in formal educational settings. As an adult education student at the University of British Columbia (UBC) I have felt a tension about studying adult education in a higher education institution. Adult education is often espoused as an open, learner-directed activity different from the rigid progression of schooling. This is an appeal of adult education. When adult education is planned or taught within any institution, including one of higher education, demands are usually put upon planners, instructors and learners from the

institution. These demands have an impact on the reputed independence of adult learners or educators. This tension can exist in different ways in all formal educational programs for planners, instructors, learners, administrators or researchers. It underpins my desire to analyze *how the setting of adult education programs affects dynamics in these programs.*

The World Wide Web was created in 1990 and the first fully online courses using this medium were offered in 1995. During the early years of the Web, online distance education was often trumpeted as a panacea to all educational problems. Course delivery via the Internet has increased substantially since then. Federally funded TeleEducation in New Brunswick provides an extensive listing of fully online courses. In 2002, 52,000 courses were available in English and French worldwide, including 1,400 in New Brunswick alone. This does not include courses, which combine classroom-based and online learning settings. In recent years Internet use has expanded beyond the distance education field. Widespread Internet use has created a neologism, distributed learning, which refers to teaching that

occurs in various distributed locations on and off site of the campus, community centre or classroom.

There are many reasons for using the Internet for teaching.

First, nearly 48% of Canadians used the Internet at home in 2000, up from 43% in 1999 and the highest home use in the western world (PriceWaterhouseCooper, 2000). Growth of Internet use has led to claims it can widen access to educational programs. This is appealing for adult educators. However, a digital divide exists within Canada and has become a policy focus of the federal government (Cuneo et al, 2000). This year the Office of Learning Technologies, a branch of Human Resources Development Canada (HRDC), has identified the digital divide between have and have-not educational organizations as a funding priority. Even while Internet use is increasing many people still cannot access online courses.

Second, many have claimed the Internet can improve the quality of learning, with little substantial evidence (Harasim et al. 1995, Goldberg 2000). Recently credible studies have emerged about the educational effectiveness of using the Internet for

teaching (Dzubian & Moskal, 2001). These indicate teaching via the Internet can improve student retention, grades and satisfaction, and faculty satisfaction. But it depends upon how a course is designed. There are good and bad courses using the Internet, just as in classrooms, church basements or correspondence courses.

Third, there is pressure from business, industry and governments to use more information technology (IT) in educational settings. Educational organizations are being asked by governments to serve the same number of learners with fewer resources, or more learners with the same resources. Some claim (e.g. Twigg, 1999) teaching via a distributed learning format can be cost-effective in the middle and long-term for educational organizations, although little credible research exists to support or refute this. Also, human resource groups are lobbying that future labourers will need skills provided in IT-based courses. As a result the federal government funds Industry Canada and HRDC to encourage IT use in education and training.

Using the Internet for teaching is also big business, just as publishing academic books and journals have been. Even with the 'dot-bomb' failures, corporate enthusiasm for 'e-learning' persists and in many cases has increased. In the sobriety of the past year, it is evident the promise of changing B2B (business-to-business) dynamics has not been as revolutionary as was hyped by the IT industry. So they have shifted marketing and lobbying efforts to the field of 'e-learning'. It is seen as a lucrative, potential market for Internet use, and services and products of the IT industry. Even before the dot-com bubble burst, Internet use for education had spread so rapidly e-learning had started to attract large businesses. In 1994 WebCT was created at UBC as a course authoring tool and by 2001 was used in over 2200 institutions in 77 countries around the world including 216 institutions in Canada (WebCT, 2001).¹ It has financial backing from JP Morgan and Thomson Corporation, and secured \$125 million equity financing since 1997. Thomson Learning is also a major partner for the Universitas 21 initiative to develop a "Global e-University". UBC and McGill

¹ It should be noted that WebCT has a loose definition of the term 'institutions'. For example, they include the University of British Columbia as an institution, and also include UBC's Faculty of Education as an institution.

are member universities of this Euro-English speaking world initiative. Partly because of WebCT's success, its main competitor, Blackboard, formed an alliance with Microsoft in April 2001. Co-funded by AOL Time-Warner and Dell Computer Corporation, Blackboard is supposed to allow instructors to "seamlessly connect learning materials developed in Microsoft Office XP-based applications into Blackboard-powered course environments" (Blackboard, 2001). WebCT and Blackboard are also working with various publishers such as McGraw Hill and Prentice Hall to develop fully customizable online course materials. Online education is not just about access, educational effectiveness and pedagogy. It is also about capitalism.

The educational terrain is still new with regard to the uses and implications of the Internet for education and many dimensions of this way of teaching and learning are not understood. But all the above reasons for Internet-based teaching beg important educational questions. Foremost is a recurring question- "does it work?"² A related question is "how does it work?"

² The increased use of the Internet in education has had the happy result of forcing the issue of quality (of teaching, of curriculum, of learning) to the foreground.

This study addresses aspects of the latter question. Any formal adult education program is a confluence of several people's approaches, interests and goals. To each moment of learning, instructors and learners bring their personal histories and knowledge. When learning occurs in formal organizations, they also bring the organization and their role within it. When the educational process involves technology, this too is an important part of the context. This study examined how organizational and technological factors shaped teaching an online for-credit distance education course for adults.

Structure of Study

Several dimensions of this study need unpacking in order to refine the research question; distance education (DE), formal adult education, adult education in higher education and the role of technology in teaching. Chapter Two begins with a review of key features of distance education instruction. Then distance education is located in adult education. The course

Technophiles like to point out that most educators rarely discussed issues of quality, issues taken up only by specialized academics of education. This led to immense complacency about teaching and curriculum by many practitioners. Concerns about quality, created by the use of the Internet for teaching, has produced this needed "blowback".

researched in this study is located at a distance teaching unit of a university that offers predominantly face-to-face teaching. So the relationship of DE to higher education is also examined. This study focuses on how context shapes teaching. There exists literature within adult education about the impact of setting on the planning and teaching process. This is reviewed in order to draw out salient insights. Finally, two facets of distance education literature are reviewed -the impact of technology in designing and delivering distance education, and organizations offering distance education. This background is used to clarify the purpose of this study.

In Chapter Three, the research methodology, theoretical framework and limits of this study are discussed. Lundgren's Frame Factor theory (1981, 1983) was used to help identify dynamics and values that exist in organizations offering adult education. In Chapters Four, Five and Six an online course in action is reviewed through the lens of frame factor theory. Chapter Six also includes the analytical framework, the output of this study.

CHAPTER 2

LITERATURE REVIEW: ORGANIZING DISTANCE EDUCATION FOR ADULTS

To examine how the setting of an online course shapes instruction, three component parts of this process need to be clarified: what counts as the setting; what counts as instruction; what is the relationship between these two?

This chapter begins by identifying components of a distance education course including: teaching in distance education, the location of distance education in adult and higher education, the role of technology in DE, and the importance of the organization. These components provide context for understanding the limits and possibilities of delivering and teaching distance education via the Internet. Then literature is reviewed on how the features and dynamics of an educational organization can affect adult education generally and distance education programs specifically. Finally, the central purpose of this study is formulated in the context of this extant literature.

Distance Education Instruction, Learners and Organizations

Most fully online courses are distance education courses.

Distance education always involves at least three features: an organization, which creates educational materials and provides an instructor to guide the learning experience, learners, and a mechanism to connect the two.

An organization is a relationship, which facilitates particular activities. A formal organization is an administrative relationship that has some division and co-ordination of labour, and structure of authority. These are not always formally defined. An educational organization ostensibly exists to host or facilitate the teaching and learning relationship between learners and instructor(s).

In many educational settings, the influence of an organization on the instruction process can often seem invisible. It's an invisible staging area upon which individual actors perform functions to achieve particular aims. This is especially the case in an efficient organization or one consistent with the

norms of a society. These organizations can often blend into the backdrop.

DE is a case of rendering the strange familiar and familiar strange. In distance education the role and importance of organizations is often highlighted, and rarely seen as a neutral backdrop. The nature of distance education demands it. In DE there is a physical and at times temporal separation of learners and instructor(s). This creates what has been called "transactional distance" -the effect that distance has on "the forms of communication and interaction [among learners and instructors], the curriculum, and the management of the program" (Moore & Kearsley, 1996, p.200). All education is a type of communication and some transactional distance exists in any educational event but in distance education the separation of instructor and learner affects their behaviour in major ways (Rumble, 1989). The goal of distance education is to address the specific challenges of geographic separation and provide educationally effective communication. In DE the transactional distance must be "overcome by instructors, learners, and educational organizations if effective, deliberate, planned

learning is to occur" (Moore & Kearsley, 1996, p.200; emphasis added) .

The organization, or the distance teaching unit within it, does the work that could otherwise be handled by the proximity of learners to the instructor and physical setting. In DE, much of the focus by learners and instructors is on the organization and people who make it up: planners, designers, course authors, student support staff and administrators. DE always involves an organization. Keegan (1980) contends the influence of the educational organization is the second most important defining feature of distance education -following the separation of learner from instructor. With DE, the structural features and internal functioning of an organization are visible to all involved partly because it is unfamiliar to many peoples' approach to teaching and learning. Internet-based DE is novel for many people and the educational approaches involved are not the norm. So there is greater awareness of the role of the organization that provides Internet-based DE.

Designing Courses and Supporting Students

Interaction between the instructor and learner is not the only feature of instruction in DE. The organization is an active part of the instructional process. The distance between learner and instructor creates a delay in communication flow. Thus any discussion of DE involves questions about communication and interaction. Three types of interaction are important to the instructional process in DE: learner-content interaction, learner-instructor interaction and learner-learner interaction. The key to offering educational programs at a distance is to see distance as a pedagogical phenomenon, and pedagogical approaches of program planning, curriculum development, course delivery and instruction are used to address the separation of learner from instructor. Teaching in distance education courses varies but there is usually an overt awareness of the development of the curriculum and supporting students. Two components are involved in overcoming the pedagogical distance between learners and instructors- instructional design and student support.

Course Design

Instructional design is the matching of appropriate methods, techniques and devices to learners' needs. It involves understanding the needs of the learner, desired learning goals, and how technology might facilitate these goals (Gagne et al., 1992). There are two important parts of instructional design; structuring the content and instructional method. Structuring the content involves deciding how information should be provided. What is the best way to order the material? Will it be presented linearly or have multiple points of entry? When will graphics be appropriate? The structure of the content is supposed to provide structure to the learning. It can encourage persistence and motivation, both of which are necessary for learning, especially for independent adult learners.

Instruction involves creating activities that help students learn the desired knowledge and skills. When should learners do problem-solving exercises or decision-making exercises? When should they interact with an instructor or other learners or their community? When should they do research, community activism or simulations? Such activities create the foundations

for subsequent levels of learning. Instruction also includes an active role for instructors as support, facilitators or lecturers to students. In distance education, instructional methods can both include the instructor, and be embedded within the instructional design materials (e.g. a videotape of an interview with Paulo Freire for Aded 412 at UBC).

The delivery of the educational program involves more than production and physical delivery of information. Formal education requires educators take responsibility for follow-up with learners, otherwise it is just information provision. Education requires offering guidance and structure to the learning experience, supporting learners with difficulties they may be having and, in formal education, evaluating learners, and assessing the effectiveness of the technology.

Student Support

Student support refers to forms of assistance intended to remove barriers (e.g. getting books from the bookstore to a student in Fort St. John or addressing communication problems between the student and instructor) and promote academic success of students

(Potter, 1998). Student support in distance education includes a variety of activities and services (see Table 1).

Table 1: Student support needs of distance education students at specific educational stages

Stage	Support needed
Pre-enrollment	<ul style="list-style-type: none"> • Information about specific programs • Advice about course selection • Information about appropriateness of specific distance education formats • Information about getting books and learning materials • Help with understanding potential effects of distance study on self • Orientation to media/course delivery format
Starting courses/program	<ul style="list-style-type: none"> • Communication with course instructor • Orientation to media/course delivery format • Orientation to library/learning resources • Information about getting books and learning materials • Communication with other distance learners • Help with learning skills • Tutoring assistance with course content
Moving through program	<ul style="list-style-type: none"> • Communication with course instructor • Tutoring assistance with course content • Communication with other distance learners • Help with writing process

Abridged from Potter, (1998)

Some student supports are the same as those provided to learners in adult or higher education organizations, such as 'information about specific programs'. But in DE, the organization provides many functions an instructor would fulfill in a classroom course. This includes administration, information about getting course materials, facilitating communication with other learners, and evaluation. The organization is an active part of what is otherwise familiar in classroom instruction.

Interaction among instructors and learners is crucial in DE and this depends on how the course is designed and technology used. If the course is designed to be 'independent study' with minimal instructor guidance, it is possible a student may communicate with the instructor only at the beginning of the course by phone and handing in assignments. Most student communication for the course will be with support staff. Other courses can require students to interact actively and regularly with the instructor and other learners. Some online courses have team instruction or guest instructors. And often the instructor is not the course author or instructional designer. Who interacts with and instructs the students can vary immensely.

Communication in DE is mediated by technology and this greatly effects the interaction. In face-to-face instruction, teacher immediacy includes nonverbal behaviours that reduce physical and/or psychological distance between teachers and learners. Each technology has benefits and limitations. Certain media encourage a more passive role for students than others (e.g. print versus telephone), and allow for written, visual, or oral communication. This effects opportunities to ask questions or construct knowledge. The effectiveness and volume of communication depends on how instructors and learners use technology. An instructor's relationship with learners is framed partly by course design and technology.

Learners: Locating Distance Education in Adult Education

Most distance education programs are offered at colleges and universities, where the learners are predominantly youth and the focus is on the reproduction of knowledge. Such a setting can seem at odds with adult education, with its emancipatory ideals. However, there are a variety of goals for adult education and places where it occurs. Many different types of organizations offer adult education programs. Programs may be sponsored by or

located in an organization that is large, stable and rigid, such as a prison, hospital, or university. Or an organization may be small, precarious, and flexible, such as Roots of Resistance, RAIN (Real Alternative Information Network) and other anti-globalization and anti-racist community-based groups in Vancouver. Organizations offering adult education pervade society and often have peripheral status (Bruner & Verner, 1968; Selman, 1988). This makes it difficult to identify patterns in purposes, philosophies, composition, administrative structure and culture (Courtney 1989; Rachal, 1989).

Distance education is a type of adult education. For example, DE can be easily located within Schroeder's (1972) commonly used typology of organizations offering adult education. Schroeder identifies four types of agencies where formal adult education occurs (see Table 2). These are distinguished according to how important education is to an institution offering adult education programs.

Schroeder's typology highlights the immense variety of places where formal adult education occurs. It also shows the often

peripheral status of adult education within an organization.

Table 2: Schroeder's (1972) Typology of Adult Education Agencies

FUNCTION	EXAMPLES IN VANCOUVER
1. <i>Primary</i> function is to serve adults	Frontier College, Justice Institute, Open Learning Agency
2. Youth institution with adult education as a <i>secondary</i> function	Night schools, Community Colleges, ESL programs, Private Colleges, University Extension programs
3. <i>Allied</i> function is adult education	Museums, libraries, health and welfare agencies, St Paul's hospital's cancer grieving program
4. <i>Subordinate</i> function is adult education	Churches, labour unions, voluntary associations, government agencies, Greenpeace

Distance education programs could take place in any of these types of agencies, but DE for-credit tends to be offered in one of the first two types of organizations. If distance education is the primary function of an organization, the clientele tend to be mainly adult learners. In DE literature, such organizations are called single-mode institutions. Athabasca University in Alberta and the Open Learning Agency in Burnaby are two examples of single-mode institutions. Often distance education is a peripheral feature of a predominantly youth-

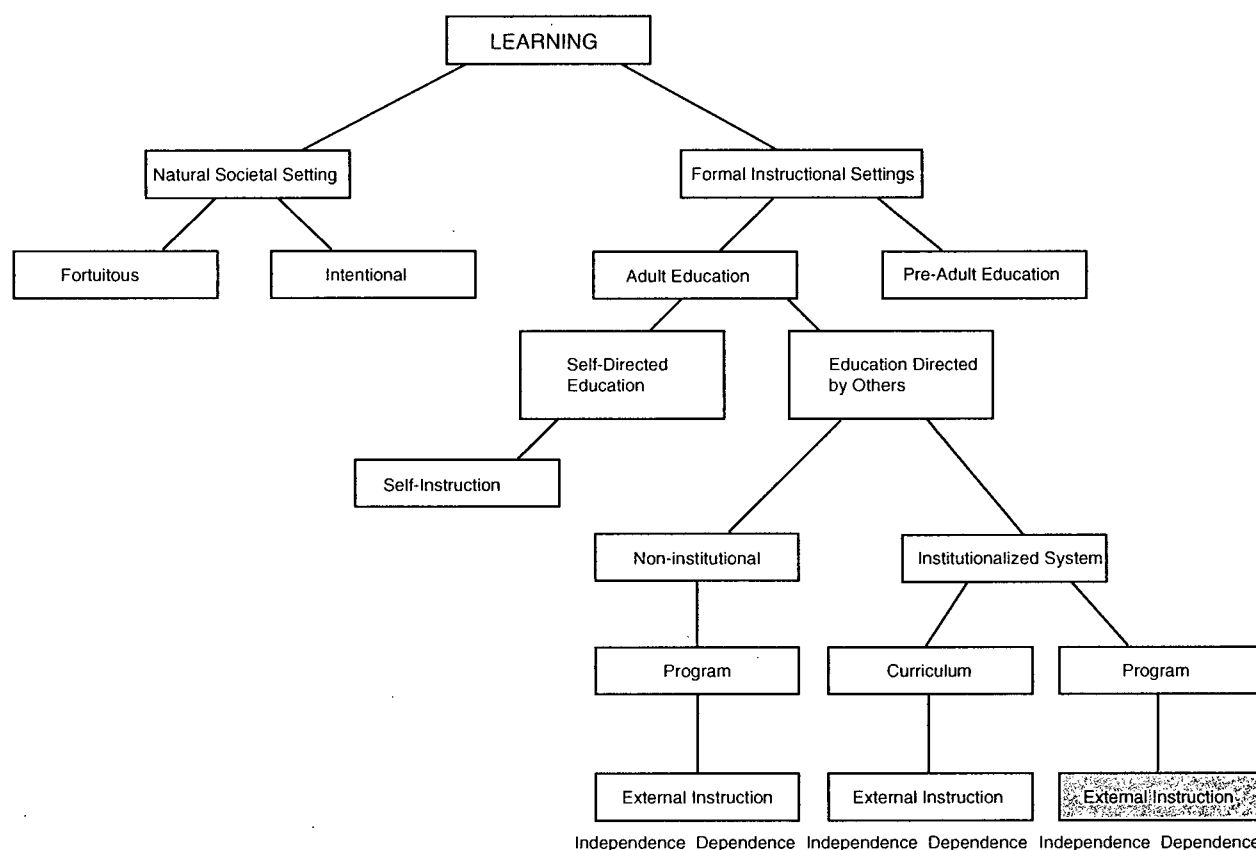
focused higher education organization. These are called dual-mode institutions that focus on face-to-face education while also offering distance courses. Many universities (UBC, University of Victoria) and fewer colleges offer distance education programs. These can be located within a college, university, school or training department; or they can be located often as a branch of extension or continuing studies divisions. Distance education is also used for various types of training programs or can be initiated by a consortium of agencies. This paper focuses on distance education that occurs in either single or dual mode institutions. These correspond with Schroeder's first two types of agencies.

Much distance education then is *formal* adult education, as it tends to take place only in instructional settings within an institutionalized system. The term formal adult education includes any purposeful, systematic and sustained learning activity that is sponsored, planned or directed by an organization even if it does not have education as a primary focus (Darkenwald & Merriam, 1982, p.152). This includes educational programs initiated or hosted by night schools,

government, voluntary associations, unions and other organizations. This is in contrast to informal adult education, which is not sponsored, planned or directed by an organization. It can include private instruction, learning exchanges, and groups independent of organizations (like reading clubs).

Little locates settings where all adult learning occurs. As he states, "while learning occurs within the central nervous system of an individual, education... is a condition established to facilitate learning" (Little, 1980, p.9). Learning occurs everywhere in natural societal settings and not just in formal schooling settings (see Figure 1). Adult education can be self-directed or directed by others. Of the latter, educational programs can be institutional or non-institutional. Non-institutional programs include, for example, a workshop on drumming or civil disobedience at a music festival. Institutional education takes place in agencies identified in Schroeder's taxonomy. DE would be located as a program of instruction, in an institutionalized system, directed by others, located in a formal instructional setting.

Figure 1: Little's (1980) classification of adult learning settings and agent roles.



Distance education is also considered adult education because DE serves mainly adults. This is common for most DE programs and courses. Even in dual-mode institutions, which focus more on youth, distance education programs tend to have older students. At UBC for example, the average age of students taking distance education courses is 28 years ($X=28.1$, $S.D.=9$, $N=1671$, Distance Education & Technology, 2000) while the average age of the overall student population at UBC is 24.9 (UBC, 2001). The

older age of UBC DE students is noteworthy given the smaller percentage of graduate courses offered by Distance Education & Technology than at UBC as a whole.

The average age of learners at single-mode DE institutions tend to be even higher. At Athabasca University 60% of *undergraduate* students are 25 years of age or older, while 40% are under 25 (Athabasca, 2001). The number of adult learners is higher for graduate courses and programs. Only 3.5% are under 25 years old, 32.4% are between 25 and 34 years old and over 64% are 35 years of age or older. This trend is also found in institutions offering DE in other countries (Curran, 1992). DE students are older and more likely to be parents and employed than non-distance education students are (Distance Education & Technology, 2000).

Distance education exists partially to overcome barriers to learning, an ethic shared with adult education. Access is the *raison d'être* for distance education. Physical access is only one component of DE. It is also supposed to be accessible for learners who are, for various reasons, marginalized by

conventional formal education. Distance education programs include several initiatives that parallel adult education. First, many DE programs are second chance education "for those who missed out the first time around" (Curran, 1992,p.56). Of these courses many include 'top-up' programs that let students complete higher level qualifications so they can move, for example, from a diploma to a degree. Secondly, DE is used for primary access to education, as an alternative to conventional education, especially in developing countries. To this end, many distance education programs are still associated with the term 'open learning', as in open to any learners regardless of previous educational background. Even in B.C. learners who may have little formal education experience or success can find points of entry into formal education, via programs like Prior Learning Assessment at the Open Learning Agency.

Thirdly, many DE programs serve as recurrent education, programs that allow learners to upgrade and do professional development. Especially since the advent of the Internet there has been immense enthusiasm for using DE to serve lifelong learners involved with recurrent education. These learners who have been

sentenced to life (Falk, 1999) are, by definition, adult learners.

Distance Education in Higher Education

While distance education is used for training, much DE occurs in a formal higher education context. These programs and courses necessarily incorporate characteristics of higher education organizations. DE for-credit courses are part of the formal education system³. This effects what occurs in a program or course. Teaching in higher education is part of an organizational network that provides space to disseminate and reproduce knowledge, values and skills to other members of society. Higher education (and often adult education) play(s) an important role in human resource development. Higher education in Canada during the 1960s is strongly tied to the economic function of education. In 1961, Schultz argued that acquiring knowledge and skills was comparable to obtaining a "means of production" (Schultz, 1961, p.11). Knowledge, he claimed, is a form of capital. Knowledge is an investment in a worker's

³ I use Coombs' definition of formal education as the "hierarchically structured, chronologically graded 'education system' running from primary school through the university" (Coombs in Rubenson, 1982, p.3).

capabilities that could lead to higher earnings for the worker and higher productivity for the economy. He called this human capital -the sum of education, natural talent, training, and experience that comprise the wellspring of future earnings flows (Bernstein, 1996, p.110). Formal education is seen to have a central role in helping to develop human capital. Based partly on this rationale, governments increased the number of universities during the 1960s and initiated community colleges. Training is an important social function of higher education. In adult education language, this would be considered education that serves to integrate people into the economy. Higher education does play other important roles in society; creating new knowledge, applying knowledge to solve social problems, providing a means of social mobility, cooling off people's aspirations, socialization, and allowing for social critique. This feature of education has been called the equilibrium-conflict dimension of social change, i.e. is the purpose of an educational program to create equilibrium or foster social change (Paulston, 1977; Elias & Merriam, 1980; Labelle, 1986; Rubenson, 1982, 1989). Most higher education teaching exists to foster social equilibrium although certain sites, within

colleges and universities, in the interstices, develop and sustain resistance and counterculture activities (Millar, 1984, p.298).

These social functions of colleges and universities translate into specific organizational processes and goals. Any organization can have tight or loose goals and tight or loose processes and practices to achieve these goals (see Table 3).

Table 3: Relationship of Organizational Structure to Organizational Goals

ORGANIZATIONAL STRUCTURE	TIGHT GOALS	LOOSE GOALS
Tight Processes	E.g. military, some educational organizations	E.g. Prisons
Loose Processes	E.g. Decentralized formal education	E.g. Non-formal education

(Adapted from Peters & Waterman, 1982).

Higher education organizations can have tight goals with tight processes or tight goals with loose processes. The mission of higher education institutions will vary as will their curricular

emphasis. But each college or university has some standardized educational practices unto themselves.

The funding and legal structure of higher education makes these institutions in Canada accountable primarily, though not exclusively, to the state. The state often plays a large role in defining the social function and official goals of higher education. This means the organizational structure of higher education tends to be more rigid than many agencies offering adult education, as college or university must produce certain educational 'outputs'. An example would be a certain number of students each year that have completed diplomas or degrees. Even a decentralized or loosely structured college or university fulfils its social function by having a privileged, state-sanctioned role in certifying learning. Grades are used to measure learning (or at least learner performance) and connect the relationship between instructors and learners to larger social and economic functions of education. Evaluation of learners articulates the process of higher education to the function of education i.e. reproduction of society. Distance

education is constrained by this requirement, imposed upon all for-credit higher education programs and courses.

Relationship of an Organization to a Course

What an organization is supposed to do and what takes place in a given course do not necessarily correspond. Any organization has official goals and operative goals, what is policy and what is procedure (Nnazor, 1998, p.34). A college or university has an interface with the outside environment of the state, economy and surrounding community. It also has an internal interface with various units, departments and, in universities, faculties.

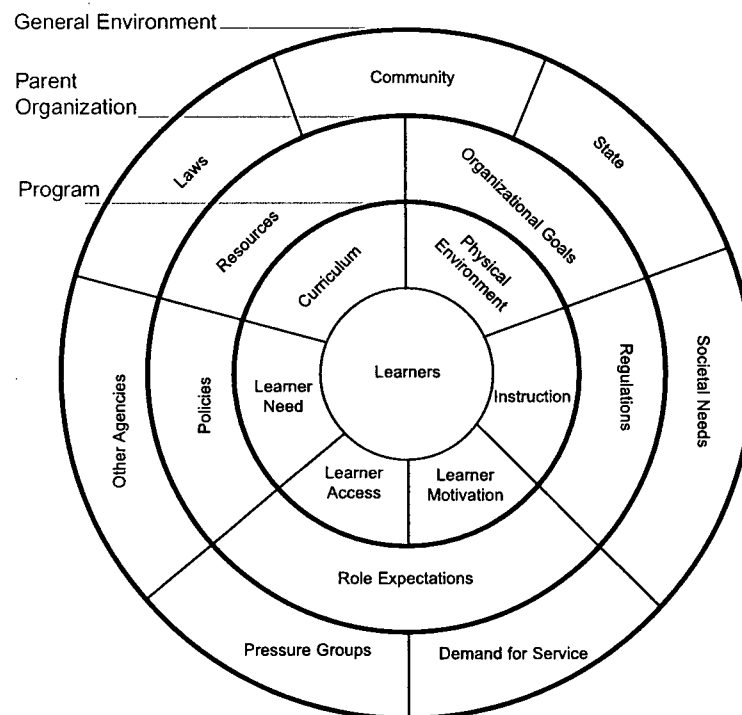
Attempts have been made in adult education to connect a course or program to an organization. Discussions about organizations offering adult education are usually found in program planning literature, the branch of adult education where administrative issues are addressed. In this literature several authors discuss how the organizational context of a course or program can shape the adult educator's actions. This next section discusses factors that interact in a course; the organizational

context and negotiation involved in planning a course in higher education.

Factors that Interact in a Course

In DE instructional design, Kowalski's work is often used to discuss the planning and design process. He analyzes adult education planning and provides a model of different factors that interact when adult education is offered by an organization (see Figure 2).

Figure 2: Kowalski's model of factors involved in any educational organization



Each circle represents a level of activity. The outer circle is the general environment within which an organization exists. The second circle, moving inwards, is a parent organization itself such as a college or university, the way educational programs are administered, the structure of authority and organizational culture. Program planners tend to work in this realm. Third is the program itself, including instruction, instructors and curriculum. The most inner circle has learners. The latter two circles tend to be seen as the responsibility, predominantly, of instructors.

This model is helpful because it names components of an organization offering distance education. It does not explain them in great detail or how they interact. For example, we know an organization's environment (laws, community, the state) can vary greatly depending on the type of organization it is, its purpose and internal functioning. All higher education organizations offering DE are required to have a relationship to other agencies or the state because government policy or economic pressures require it. Some higher education organizations choose to react to changes in the external

environment. An example is industry-based adult education (including distance education) programs offered by extension divisions at colleges and universities. And any organization is affected by the culture of the external environment. An organization relates to its external environment because of specific relationships such as the link of DE to the economy and state. Through his model, Kowalski identifies several components within an organization and why organizations can be different. But he does not discuss how these features may affect an organization dynamics.

Context of Planning Educational Programs

Cervero and Wilson (1994) examine the context of planning by looking at planners' everyday practice in their organizational setting. They studied three different types of organizational settings to evince how an organization can effect program planners' practice, even planners who do not necessarily try innovative adult education programs. They found that an important feature of what program planners do everyday is to negotiate personal and organizational interests. An adult educator (or a learner) is not an autonomous individual, self-

directed in his or her own approach to teaching, planning or learning. Adult educators are embedded in an organizational structure of power. "Power relationships structure the terrain on which programs are always planned" (Ibid., p.12). Various staff members in an organization embody institutional power, defined by their roles, manifest in their interaction. An organization's power becomes visible in everyday negotiations among actors and in how authority is structured. These negotiations are especially important in distance education where planning usually involves a team of people. The team can include instructional designers, content experts and technical production staff. Cervero and Wilson argue planners need to "anticipate the structural relationships of power", in order to be aware adult educators. Their perspective identifies power as a characteristic of formal adult education. However, they have a relatively uncritical definition of power in their work. They still maintain a strong belief that "the educator can do what they want to" (St. Clair, 2000, p.22).

Planning Courses at a University

Adult educators encounter organizational constraints when planning a course⁴. These are often more visible with innovative or novel courses. Organizational constraints can be imposed on educators not just from the organization, the state, or peers but from what students expect of a course. A useful example is a learner-centred curriculum for a teacher education program at a South African university initiated during apartheid by a group of innovative adult educators (Millar 1986, 1989). Instead of using a regular approach to teaching, these educators wanted to 'democratize the curriculum' by having students negotiate what they learned. The initiative failed because of resistance primarily from learners. They were initially uncomfortable with the new approach to program planning, as it was significantly different from previous experiences. And once learners, as student-teachers, were in the workplace, they felt the curriculum did not prepare them to meet work demands. This

⁴ I define 'constraints' as Giddens does: "limits upon the range of options open to an actor, or plurality of actors" (Giddens, 1984, p.177). He identifies three types. Material constraints derive from the qualities of the material world and the human body. Negative, power-based constraints (i.e. sanctions) are punitive responses by others because of one's actions. Structural constraints, derive from the context of action, i.e. from the structural property of a situation. All three types exist in the context of teaching online.

attempt to introduce a new style of planning for student-teachers failed because it stepped outside the tacit contract that exists between actors in an educational setting. When learners, educators and planners are involved in an educational program, they tacitly agree to normative "terms of educational practice". This tacit contract includes: norms of behaviour, "predetermined categories of knowledge", accustomed roles, and an unstated understanding of where authority lies. As long as these terms are adhered to, an organization's role and norms of educational practice remain invisible. This tacit contract is violated when someone attempts to initiate curriculum or instruction that breaches expected practices. When educators initiate such programs, they encounter barriers that make the educational context visible. The staging area of education is no longer taken for granted or neutral. What learners and educators expect of an educational organization is a component of any educational context.

Planning educational programs must account for a program's institutional character, including normative expectations of the organization. The educational context can create tensions for

educators who want to plan or instruct in a less conventional approach than an institution is willing to allow. The South African example underscores that an educator, planner, course designer, or learner has freedom to act but it is a "sponsored freedom" where the organization is the guarantor. The barriers encountered makes context apparent.

This is not uncommon experience for adult educators who have undertaken new educational initiatives in an organization. Many adult educators, including myself, have learned about these organizational norms, the hard way.

DE is interesting because the teaching and learning contract is not tacit. It is usually stated up-front. And this contract is dynamic in DE, partly because of continuous changes to the technological settings of DE. I will return to this point in Chapter 5.

Technology in Distance Education

Distance education is made possible by changes in communication technology. DE is intrinsically related to media. Bates'

ACTIONS model provides a useful summary of technologies used in teaching distance education, along with their strengths and weaknesses (see Table 4).

The first generation of media was print associated with postal mail (Bourdeau & Bates, 1996). Printed materials such as textbooks, study packages, and letters were used as communications media for correspondence study since the late 1800s.

The second generation of media was audio, via radio and telephone. The interactive ability of radio is limited, as it is a one-way medium. Telephone allows for individual two-way tutoring and is commonly used in DE.

In the 1950's, television and later satellites were available and could be used to visually enhance learning materials. But they too are generally one-way media that are good for delivery of information but not for interaction. This third generation of media relies on telephone and postal mail for interaction between instructor and learner and among learners.

Table 4: ACTIONS Model- Summary of Strengths & Weaknesses of Technologies for Distance Education

Media	Access	Costs		Teaching		Interactivity		Organizational Issues	Novelty	Speed (required to change course content)
		Number Large	of Learners Small	Presentation	Skills	Learning Materials	Social			
One-way media										
1. Print	Good	Good	Average	Average	Average	Average	Poor	Poor	Poor	Poor
2. Radio	Good	Good	Poor	Poor	Poor	Poor	Poor	Average	Poor	Good
2. Audio-cassette	Good	Good	Average	Average	Good	Good	Poor	Good	Poor	Average
3. Educational broadcast TV	Good	Poor	Poor	Good	Average	Poor	Poor	Poor	Average	Poor
3. Pre-recorded ITV	Good	Good	Poor	Average	Average	Average	Average	Average	Average	Poor
3. Video-cassettes	Good	Average	Poor	Good	Good	Good	Poor	Average	Average	Poor
4. Computer-based Learning	Average	Poor	Poor	Average	Average	Good	Poor	Poor	Average	Poor
4. Multimedia	Average	Poor	Poor	Good	Good	Good	Poor	Poor	Average	Poor
Two-way media										
2. Audio conferencing	Average	Poor	Good	Poor	Average	Poor	Good	Good	Average	Good
3. Live interactive TV	Poor	Poor	Poor	Poor	Poor	Poor	Average	Average	Average	Good
3. Video conferencing	Poor	Poor	Average	Poor	Average	Average	Average	Average	Good	Good
5. Internet	Average	Average	Good	Average	Good	Average	Average	Good	Good	Good

ITV= instructional television

(adapted from Bates, 1995, p.17)

Number beside media indicates generation of media.

The fourth generation involved computer and information technologies as stand-alone ways of delivering learning materials.

The fifth generation includes digital technologies, which since advent of the Worldwide Web has meant predominantly the Internet. While the Web was created in 1990, the Internet has been around since the late 1960s, and email has been commonly used since 1985. A rich and growing body of literature exists in DE about the previous four generations of media. The fifth generation is recent and research about its use is nascent.

This study focuses on Internet-based DE but earlier generations are important to know about and some previous literature is of use and will be discussed further in the chapter on research methodology. As McLuhan said, there are no completely new technologies, just extensions of old technologies (McLuhan, 1964).

Summary of Literature Review

To summarize, literature indicates distance education is organized teaching where students and the instructor are physically separate. This requires that an organization play an active role to bridge the communication gap between learners and instructors. Thus, the organization is more visible in DE than other types of education. Instruction in DE involves the instructional design process and student services, as well as the relationship between instructors and students. Most distance education that takes place in organizations that primarily serve adults, or youth institutions where adult education is a secondary function. DE students tend to be adults, older than most higher education students.

The function of most DE courses is the same as other higher education programs: to reproduce knowledge and develop learner's human capital. Most distance education is oriented towards creating equilibrium rather than fostering social change. This means that evaluation, usually manifest as grades, is an important feature of courses. Grades are used to measure courses and connect what takes place inside a course to the

larger social and economic function of education. DE is involved in higher education organizations that tend to have loose processes and tight goals.

A great variety of studies exist on the organizational context of adult education programs or courses. While some studies address general factors that interact in a course, there is little detailed analysis of the impact of the educational context on teaching and learning. Importantly, the literature indicates adult educators rarely act alone and, in formal programs, their freedom to act is a "sponsored freedom" where the organization is the guarantor. In DE, the importance of the sponsoring organization is overt.

Finally, DE is made possible by technology and there is extensive analysis of the benefits and limitations of most types of technology for teaching. As the Internet is recent, there is much less literature about how it shapes teaching.

Purpose

The literature is helpful about the role and importance of distance education setting but is patchy and there are many gaps. In particular there is little research analyzing relationships among teaching, technology and the organization. There is little which explains, for example, how an adult educator with a humanist or radical theoretical perspective teaches within a behaviorist organization? Yet many adult educators face this tension.

It is a maxim of adult education that education does not occur only in classrooms. Yet education for adults often takes place in classrooms, training centres, church basements, at protest rallies and online. How do we understand the importance of these contexts? Even ad hoc adult education programs are premised on some coordination of labour and facilitation of power. If all formal adult education is organizational education, educators need to be able to analyze the setting of their practice. For DE, an important way to do this is to examine the organizational, technological and sociological context of practice. Some engagement with perspectives on

organizations from sociology and organizational theory is beneficial. As Griffin (1991) stated, "the study of adult education as bureaucratized profession is relatively underdeveloped." The interest in this study was to look at distance teaching as a bureaucratized and technological form of instruction. What does it mean to teach adult education via the Internet in formal organizational settings?

Therefore, having regard to the foregoing, the purpose of this study was:

- to analyze the institutional and technological constraints on adult educators teaching programs via the Internet in a formal educational setting
- to create an analytical framework that allows adult educators to assess constraints they face when teaching via the Internet

The method used to achieve these aims is discussed in the next chapter.

CHAPTER 3 METHODOLOGY

The theoretical framework and methodology for the study are discussed in this chapter. After a summary of frame factor theory and its use, the specific research question and design are described, along with criteria for assessing the soundness of the study.

Extensive research has been done on the dynamics that occur within online discussions, even prior to the advent of Web-based education (Henri, 1992; Mowrer, 1996). Communication via computer-mediated conferencing, and later email, has been analyzed for over a decade. Most of the focus has been on content analysis of online discussion such as: what types of postings have learners and instructors made; are they personal impressions or do they reflect deeper level thinking. Other studies have looked at patterns of interaction such as how often students communicated with each other and with instructors at different points in the life of a course (Fahy et al, 2001; Garrison et al, 2001, Hara et al., 2000). I look at some of this information in the course studied for this research. This

literature indicates an emerging set of norms about how to teach online. These norms are becoming a sort of social constraint, beyond an instructor's control. Instruction is determined partly by an instructor's actions and learner-to-learner interactions. However, many decisions are made by instructors or students that are not of their choosing. Instruction includes the connection between what occurs 'internally' in the course and the 'external' setting. The goal of this study is to connect local experiences observable in the instructional setting with larger forces that constrain educational activities.

In order to make this setting observable, I needed a theoretical framework that connects the interaction among learners and students with the social context⁵. Frame factor theory is an analytical tool that makes these connections. It provides a useful theoretical framework for connecting actions of instructors and students with external factors.

⁵ I look at the context partly because I am dissatisfied by Pratt's (1998) otherwise very useful model of teaching. He identifies five different perspectives on the interaction of instructors, learners, content and ideology. He mentions the context of teaching in each of these five perspectives but it is not discussed in much detail even though it can make a substantial impact on the interaction among instructors, content, and learners.

Frame Factor Theory

'Frame factors' refers to "the circumstances governing [teaching] activities" (Hoghielm, 1985, p.216). A tangible definition of frame factors identifies them as "decisions outside the teacher's and student's control" which shape teaching and learning (Dahloff in Lundgren, 1981, p.24, emphasis added). In the late 1960s and early 1970s there was increasing interest and awareness of how people's actions were shaped by social and institutional forces. As a part of this trend, instructional processes were analyzed in the context of social structures. In Sweden this was manifest with the "Model Analysis of Pedagogical Processes" or MAP-project. It consisted of several studies about "the structure of [the] teaching process as an expression of organizational constraints" (Lundgren, 1981, p.3). The goal was to overtly link theories of constraints with theories of education in general and teaching in particular. Such an approach was a departure from how teaching was usually viewed and analyzed. The focus is usually on instructors, learners and interaction between them (Knowles, 1970; Brookfield, 1986; Pratt, 1998). "The context of education is largely ignored in much adult education literature so that

education, a social phenomenon, is reduced to a psychological phenomenon, learning" (Rubenson, 1989, p.59). There has been little focus on organizational settings and their impact on teaching, especially in adult education contexts.

The MAP-project sought to make teaching structures visible and connect changes at the micro-level of teaching with changes at the macro-level of economy and society. 'Frames' was used by Dahloff and Lundgren (1970) and later modified by Bernstein (1975) as a way of conceptualizing the connections between macro and micro levels.

Frames are most readily evident in primary and secondary education where constraints on educators are quite stark. In K12 education, frames have been called 'the grammar of schooling' - "structures and rules that organize the work of instruction" (Tyack & Tobin, 1993, p.454). In primary and secondary education, classes are rigidly divided, respectively, into grades that are self-contained and 50 minute 'Carnegie units' according to subject areas. These are historical organizational rules that shape instruction but are not decided

by instructors. In K12, the way knowledge is divided into subjects is a frame, as is having standardized class sizes, more or less same-sized rooms, and having classes the same length of time. These organizational features of teaching create the conditions of instruction. The 'grammar of schooling' helps identify grammar (or frames) that connect organizational structure to instructional practice.

Teaching in higher and especially adult education tends to be more diverse than primary and secondary education. The different types of teaching in higher education include: lectures, lectures plus tutorials, seminars, wet labs, dry labs (e.g. film production), co-op courses, directed study courses and field courses. Factors frame instruction for all types of teaching, and all settings, even non-formal adult education. For example, a defining feature of adult education is time limits on the learning process.

[T]he fundamental difference between learning in the natural societal setting and education is that of systematic instruction. This systematic aspect is characterized by a time dimension.. [E]ffective analysis and planning of education is aided by the selection of a time limit which sets boundaries to what is either sought or observed (Little, 1980, p.9).

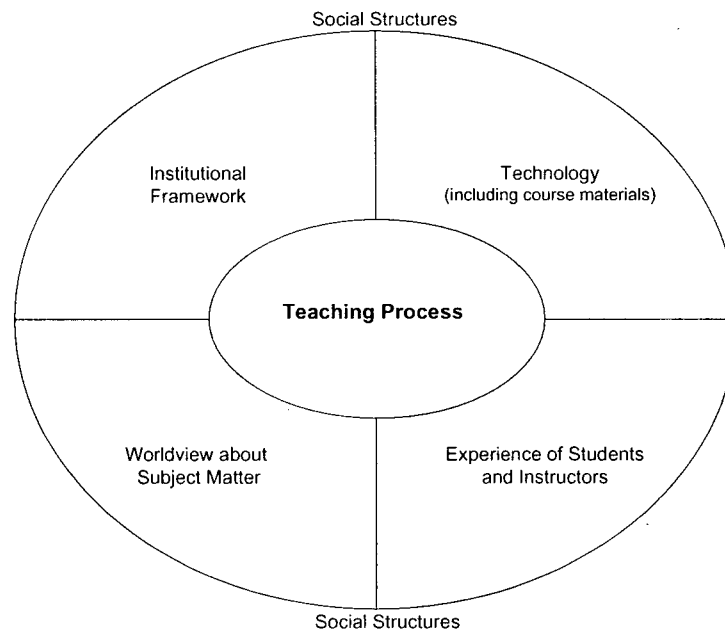
In all educational programs educators create time parameters to bound and hopefully focus the teaching and learning relationship. A time limit affects teaching and teachers and is usually beyond the control of the instructor.

A useful model exists for viewing contextual factors that affect the teaching process in adult education (Nesbit, 1995). It provides a lens to observe instruction in context of: the institutional framework, students' and instructors' experience, their general worldview about the subject matter, and social structures (ibid., p.63). I have adapted this model to include technology as an important frame for teaching adults via distance education (see Figure 3). The model allows me to apply frame factor theory, and provides a lens to see and unpack the conditions of instruction in one online course.

Teaching process in this study refers to what takes place in the communications among students and instructors. This is a bit of a departure from how people think of teaching in distance

education, where it also includes the materials created in the instructional design process.

Figure 3: Frame factors in the online teaching process



Social structure refers to characteristics or properties that make it possible for "discernibly similar social practices to exist across varying spans of time and space and lend them 'systemic' form" (Giddens, 1984, p.17). Practices done recurrently throughout long periods of time in a given culture or across cultures are considered institutions. Education is an institution, which reinforces rules and resources in society, and is also shaped by existing rules and resources from other

institutions in society. Several rules and resources -especially from governments, interest groups, social norms- shape educational programs, though not always directly. The work context and thinking of instructors' and learner's are shaped and limited by social structures.

"Institutional framework" includes organizational and curricular factors that allow for educational courses to be provided and specify how and what should be taught. These include: physical resources, administrative processes of an organization, set procedures for teaching, rules around what books and materials can be used and how they are chosen.

Technology is an important frame if one accepts McLuhan's slogan "the medium is the message"⁶. Technology mediates communication and each presentation of information is affected by the structure of a medium. Each technology has advantages and disadvantages and this shapes and limits what type of teaching can take place.

⁶ A modern day version of this is "Kranzberg's First Law: Technology is neither good nor bad, nor is it neutral" (Castells, 1996, p.65). The quote is far less nuanced and

Experience of students and instructors refers to the attitudes and expectations that people bring to a course or program. As indicated by the example of the South African university, to each moment of learning, instructors and learners bring their personal histories and they anticipate what the educational experience will be like. These general expectations act as norms, outside an instructors' control, that shape teaching.

"Worldview about the subject matter" refers to learners' and instructors' prior knowledge. Just as people bring expectations to a learning setting, they also bring some knowledge about the course content, however basic or complex. This worldview is partly based on learners' personal knowledge and partly on society's conception of the subject area. Each knowledge area is codified and made official, with rules governing how it is articulated. This too is beyond the control of the instructor and shapes how she or he can teach.

catchy than McLuhan's but it points out an irritating feature of literature about the Internet; the belief that somehow this all completely new.

These factors are used to analyze what frames the conditions of instruction in an Internet-based course. Any course is a confluence of frames and choices by participants. The actions of students and instructors are important, but so are factors not of their choosing. This model is the starting point for analyzing constraints and possibilities of teaching online.

Research Question

This study has a single overarching problem: how are instructional processes in an Internet-based course shaped by factors beyond the instructor's control? Practical research exists on frame factors in adult education. The unique contribution of this study is to examine factors which frame teaching in an online setting. Thus, most of this discussion is about technological and institutional frames, though the other two frames are also considered briefly.

Research Design

To gather information about how various frames affect online instruction I examined an online course. Edu 555 is a graduate course offered at Dual-Mode Institution (DMI). All students in

the course were adults (ranging from 28 to 53 years old). The course was on technology use in adult education. DMI offers predominantly classroom-based courses but has a small distance teaching unit (DTU) which administered and delivered this course. It is innovative in online education and has served as a model for other institutions wanting to use the Internet to deliver educational programs. This is one reason for choosing this site.

The course was offered during a four-month period in 2000 and the site was archived. Data about Edu 555 and its setting were collected from three sources.

First, policy documents were reviewed which describe the relationship of DTU with DMI in order to identify what institutional and organizational constraints were placed upon developing and designing of Edu 555.

Second, I perused planning and design documents and literature of online courses at DMI. Decisions about what to teach and how to teach are often separated in analyses of adult education into

the categories of program and curriculum planning, and instruction, respectively. By necessity, distance education requires this separation be blurred in instructional design. Instructional designers make decisions while creating courses, decisions that establish parameters and possibilities of what can occur while teaching online. Distance educators recognize course design is an important organizational frame of teaching.

Most of the information comes from the course, the third source of data. Online education, more than most kinds of DE or classroom-based instruction, provides that rare goldmine for researchers; a snapshot of a large section of a course as it occurred. Most interaction among learners, instructors and materials are textual and documented. The archived site provides an extensive portrait of most group communication during the course. It includes course announcements, a list of assignments, the course blocks, discussion forums, resources and tools. Students also communicated to their instructor and each other outside of the discussion forums via direct email. These were not examined, as this would have required approaching each student and perusing their individual email accounts in search

of correspondences with tutors and fellow students. Another rich data source would have been to interview instructors and students. I chose not to do this because I wanted to see if and how frame factors manifested in the practice of the course.

Data Analysis

The biggest dilemma for analyzing data was how to organize and examine the immense volume of information. The discussion forum alone had over 1000 postings. Some order and meaning needed to be brought to this data, so organizing and analyzing the data took place in several phases. In the first phase, the purpose was to 'let the data speak' about the frames. I wanted to generate themes and categories from the data in order to derive inductively manifestations of frame factors. NUD*IST qualitative software was used to create a hierarchical database of all Edu 555 documents and discussions which were electronically archived. This required tedious, time-consuming cutting and pasting of nearly 1000 messages from the WebCT discussion forum to NUD*IST document explorer. Once in NUD*IST, data was printed out. The volume of data - the discussion forum alone was nearly 700 pages, in ten point font- suggested that

sampling the data would be a useful initial step for developing emic categories. Two sampling approaches were used: random sampling of individual postings by students and instructors; and stratified random sampling of discussions about one subject. For random sampling, a colleague drove a nail through two parts of the discussion forum print-outs. Using a table of random numbers 50 pages from nearly 700 were chosen. On any chosen page, five lines below and above the nail (or more accurately the hole left by the nail) constituted a data sample. Each sample was perused to see if it exemplified a particular manifestation of frame factors. Those samples that did so were clustered into themes, as exemplified by the table 5.

Table 5: Example of how data was organized into themes

Page Number -Posting Number	Person	Theme
20 -355	Scott	I -International student discusses his location
35 -1114	Cynthia	No notable theme
53 -1917	Huang	T -A lurker: someone who logged on for a 19 days but did not participate in the discussion. Culturally (Chinese) who was not used to this kind of participation.
84 -1093	Ron	T -Quotes another posting verbatim and comment upon it, point by point.

All the samples were then reorganized according to themes. For example, all postings where students like Scott discussed their international location or perspective on a given topic, were listed under the theme category "students indicating their international location". It took a substantial number of postings within a category before it could be considered a trend. Each theme was then associated with categories from the frame factor model (in Figure 3), indicated in Table 5 by a letter, such as "T" for technological frame. These themes were also compared to existing studies (Hara et al, 2000; Henri, 1992).

It became evident from this comparison, that the categories that emerged from random sampling did not always cogently exemplify particular frames. So a second sampling approach was used, stratified random sampling. In the discussion forum, each posting was organized into a string by 'subject heading'. I printed out a list of all the 'subject headings' discussed in the forum. Using a table of random numbers, I selected one subject string. This block of postings was also analyzed for particular manifestations of frame factors. These

manifestations were clustered into themes. This second sampling gave more continuity and context to the data being analyzed than the first sampling method. After this second layer of sampling, I again tested the emerging themes and concepts against the entire data of the discussion forum and the other two document sources.

Writing the Analysis

The research findings are organized according to these themes. These findings were then compared to existing studies that have used frame factor theory in classroom-based adult education courses. From this comparison, a series of guideline questions were created to serve as a tool that allows adult educators teaching via the Internet to assess their constraints. Textual data from course documents and the discussion forum (i.e. the words of the course participants) and its quantified version run through NUD*IST are not presented in their raw form. Data is used selectively to explain and extrapolate the themes.

Anonymity

In order to ensure anonymity, the research site, location and course have been given pseudonyms. The names of cities, countries, people and educational programs have also been disguised. The organizational and funding structure of the setting for the adult education course has been identified as accurately as possible. Since the institution and educational program are disguised, this study would be considered anonymous document analysis/ group observation. All quotes are from the discussion forum and have been checked to filter out any identifying or personal characteristics of the commentator, other learners, instructors, or people within the organization. Screen captures could not be used as this would identify the research site.

Limitations of the Study

This study is a document analysis. Ideally, it would have been useful to conduct a case study in which instructors and students were interviewed during or after the course to get a complete picture of the constraints and possibilities that existed for Edu 555. The course was completed sometime ago and it proved

logistically difficult to interview participants. Also, the above three sources of data provided immense information, especially the third source, the archived course. Qualitative research always has the dilemma of how much data is enough. This study is not as comprehensive as it could be but it does have extensive data about what occurred in the course itself. Much of the study was focused on how students and instructors communicated in the online course.

Online courses can be designed in a variety of ways so it is difficult to generalize from one instance to another. Instead, the merit of this study was not in its generalizability but its relatability; the extent to which an educator reading it can relate it to her or his setting (Bassey, 1981, p.73). A series of guideline questions were the output of this study. In a diverse and complex field like adult education an analytical framework can be an effective tool for understanding practice and guide decision making about teaching on the Internet.

Of the four frames, the institutional framework -the physical and organizational setting of the course- is discussed first as

it provides context (Ch. 4). The unique contribution of this study is the setting of teaching adult education online via the Internet. The technological frame is described in some detail in chapter five, with a focus on possibilities and limitations it creates for instructors and students. In chapter Six I discuss the other two frames briefly: the experience of students and instructors, and the general worldview about the subject matter as manifested in the course.

CHAPTER 4

INSTITUTIONAL FRAME FACTORS

This chapter begins an analysis of institutional frame factors evident when an online course is viewed through the lens of frame factor theory. Both conceptual and physical factors limit the teaching process and are determined outside the control of the teacher. Examining the course in action shows how frame factors manifest themselves.

Creating an online course

In 2000, DTU offered an online graduate course, Edu 555, on the Pedagogical and Social Implications of E-learning. According to Edu 555 course design documents, the course was created by DTU within DMI in partnership with a Latin American University (LAU). DTU's mission is to develop and deliver cost-effective, quality programs, courses and learning materials in flexible formats primarily for academic departments at DMI. Edu 555 was one of several online courses that could count as course work toward a graduate degree at DMI for students already enrolled there. Academically, DTU is located in DMI's extension division. This allows DTU to offer courses for students not

enrolled at DMI. As a way of attracting students from the general populace, DTU offered Edu 555 as part of a certificate in E-Learning. This course could be part of a graduate degree for DMI graduate students, a stand-alone certificate in E-learning for the general populace, or just taken for general interest by anyone.

All DTU courses are for-credit with over 90% being undergraduate courses. Most DTU courses are initiated by deans, department heads or faculty members of a given subject. They submit a full proposal to DTU for creating a distance course. DMI's Advisory Committee on Distance Teaching reviews the proposals and decides which ones will receive DTU funding and support to become a distance education course. The Academic Vice-President of DMI must approve all courses selected by the committee. For each approved course DTU requires a letter of agreement with the academic department. The letter includes a budget, timeline for course development, intellectual property agreement, and details about the length of the agreement. Most relevant for this study, the letter includes an academic review process and clarifies the roles of the academic unit and DTU for instruction

and student support. The courses are the 'property' of the academic unit and the faculties. They are accountable for course quality even though these are offered by DTU. These courses usually count toward a degree and only a Faculty can grant a degree, not DTU. The Faculty has to approve course materials, curriculum and assessment, provide or agree to the instructors, and review academic content of the course at agreed intervals during its shelf-life. Edu 555 is the academic responsibility of the Faculty of Education. For a course to count towards a certificate, DTU must negotiate the conditions with individual faculties and get approval from the Academic Vice-President and Head of DMI's Extension Services.

Given these institutional requirements, Edu 555 involved an extensive design process. Twenty-one people were involved in designing and delivering the course according to the course design documents. These people were part of various teams required for the course, such as:

- ten members of the Edu 555 course design team
- seven members of the associated course team (including members from LAU)
- six members of the marketing and registration team
- five members of the Tutoring/Instruction Team

- a five member Advisory Committee for the courses and certificates
- a four member Academic Review Committee from DMI's Faculty of Education (FOE)

Many of these members overlapped their involvement in various committees. This meant people representing different institutional and educational interests defined the structure and content of the course.

The course design team included course authors from FOE and instructional designers, graphic designers, and web production and maintenance staff from DTU. The FOE subject matter expert produced the course materials for Edu 555 in conjunction with DTU. The latter agreed to provide material reproduction and delivery to students, email support, web-site maintenance, supports for instructors (including payment), student support (including resolving administrative problems, and tracking student progress) and reporting of grades to DMI.

The associated course team consisted of members from the institutions (DMI and LAU) who had a vested interest in the course. The advisory committee included representatives from

the course design team, DMI's Extensions Services and DMI's Advisory Committee on Distance Teaching. The course advisory committee combined Edu 555 and a series of other courses into a stand-alone certificate at DMI. The Academic Review Committee reviewed Edu 555 for FOE, a review process common to all for-credit university courses.

These institutional requirements and arrangements created two kinds of frame factors that affected the teaching process: organizational frames such as class size, specific roles for instructors and their accountability; and curricular frames such as the course content, assessment, and specific assignments.

Organizational Factors

Class Size

The design team decided that Edu 555 would be limited to 40 students with two instructors. This was an organizational, financial, and pedagogical decision by the design team and Academic Review Committee. Previous experience and research with online teaching indicated it could become a lot of work for instructors. A ratio of twenty students to one instructor was

seen as an appropriate class size in order to keep the workload manageable for instructors. It was also decided that greater than two instructors and 40 students would require more student services and web support than DTU could afford to provide with its current staff and their workload supporting other courses. Offering Edu 555 to a greater number of students would have required DTU to invest more resources for support staff, an investment deemed not feasible.

Instructor Roles and Accountability

Several organizational features of Edu 555 framed how instructors taught. These included: the course design method and instructors involvement in it; the relationship of instructors with the course content; and the organizational accountability structure of the course.

Edu 555 involved the instructor late in course planning, design and delivery. Instructors did not have input in the course content, which was created before they are brought on-board. This is a function of the planning and design method at DTU, which is different from how a course is planned and organized in

face-to-face instruction. DE course materials are often considered manufactured, the way a product is in an industrial or Fordist organization (Peters, 1983). Many of the characteristics of a Fordist organization apply to the way Edu 555 was designed and delivered. A Fordist organization has:

- a specific division of labour
- economies of scale in which startup fixed costs are high but costs decrease with each extra or variable unit produced
- hierarchical management
- production of uniform products
- standardized policies and procedures

A set division of labour was used to produce Edu 555, with most of the people involved, and cost incurred, at the front end.

The list of people involved (above) shows the way labour was divided for Edu 555. DTU is aware that adults are self-directed learners, and they seek to support and foster this principle by designing courses that allow for independent study. This is part of distance teaching's *raison d'être*; to provide learners with flexibility for learning. Flexibility is maximized when course study is independent of time, place and social ties, such as requiring the continual guidance of an instructor. It should be possible for a student to take DE courses and have little

interaction with the instructor or other students, depending on how the course is designed. So, often a course package or website includes directions and information that might otherwise be provided by an instructor to guide students through a course.

The instructor is involved later during the delivery (i.e. teaching) stage. Even though the course package and website for Edu 555 can be used or experienced quite independently by learners, some agent needs to provide guidance and structure to the learning experience. Otherwise it is just "informal education", where reading a course package or website becomes just a part of the everyday learning that happens incidentally everywhere (e.g. watching drama on TV or conversations) and is part of living (Coombs, in Rubenson, 1982). To reflect this principle many DE units are called *Guided Independent Study*. It is a characteristic of Fordist division of labour that certain individuals will produce a course and others will teach it.

This results in pedagogical and cultural differences between the way DMI's Faculties and DTU, think of teaching. The discrepancy is evinced in the nomenclature. People who teach courses in the

faculties are called instructors or, if they are tenured or tenure-track, professors. For Edu 555 they were called tutors and are seen more as a support person. DTU courses are uniform products. This allows DTU managers and the Faculties to replace an instructor, or bring on an extra one, quite easily without having to change Edu 555 to do so. The organizational model makes it logistically and financially easier for the organization to adapt to changing circumstances. But when the organization or department has more flexibility the instructor has less. The course content is a fixed product and an instructor has less affect on its composition.

In Edu 555 the instructor was appointed by FOE in consultation with the course design team. Technically, the instructor is academically accountable to the Faculty and administratively accountable to DTU. This was not the case in practice, partly because instructors have more contact with DTU than with the Faculty. Instructors felt accountable to DTU because of the course evaluation, feedback process, and payment structure for instructors. For example, the only evaluation of Edu 555 was undertaken by DTU. FOE did not participate in creating the

evaluation form due to a lack of time and perhaps a general lack of interest. Only DTU had student feedback about how instructors were teaching. This could be shared with others but the questions on the evaluation reflected DTU issues and priorities. DTU was also aware of instructor performance from their student support staff. This was whom students turned to when they had concerns about administrative and, at times, academic issues during the course of the course. DTU acted as a liaison between students and instructors where appropriate, similar to the process indicated by Potter (see p.16 above). Evaluation and student feedback via DTU staff made instructors feel more academically accountable to DTU than FOE.

Edu 555 instructors were administratively accountable to DTU, who paid them. Instructors were paid according to the number of students in the course and those who completed. There are different contract arrangements at DTU and for Edu 555, instructors were given 40% of their payment at the beginning of the course. The payment is based on the student enrollment numbers and a projected forecast of those who would complete.

The rest of the payment, 60%, was given when the course was completed and final grades submitted.

So Edu 555 instructors were institutionally accountable to both the Faculty and DTU. Instructors had more contact and demands put on them by DTU than FOE. Instructors knew before the course about these parameters but not necessarily how these might affect teaching. For example, for most university courses there is usually little connection between student performance and instructor pay. But with Edu 555, it was in the financial interest of instructors to have as many students as possible complete the course. The organizational method of creating and delivering courses encouraged instructors to act in certain ways. It is difficult to know though, how this payment structure effected the behaviour and teaching of Edu 555 instructors (or other DE instructors at DMI). It is unlikely that instructors could or would speak to this controversial topic.

Class size and instructor accountability were decided before Edu 555 opened and were conditions of teaching online at DTU.

Curricular Factors

Curricular factors define what is to be taught, topics, instructional materials and books (Nesbit, 1995). Designing course content before instructors are involved creates factors that frame teaching: assessment, set course content, and recommended ways of teaching and learning online.

Assessment

DTU offers non-credit and credit courses. But DMI's institutional rationale for offering Edu 555 was to accredit students with a diploma or degree in the emerging of field e-learning. As Edu 555 is a credit course, DMI requires all students be assessed. DMI has no set policy about how assessment should take place, but there are guidelines and conventions within the faculties. There is a fair amount of independence in most adult and higher education settings about which activities can be used to assess students. For Edu 555 the course design team decided students should be assessed in the following way:

- 5% -participating in online discussion
- 35% -making a presentation online and moderating a discussion
- 25% -writing an article review using theories from the course

- 35% -writing a paper on a major issue identified in the course

Assessment is important as it can play several functions in education. Ostensibly it is used to measure learner's knowledge of a subject (or perhaps more accurately, learner performance based on that knowledge). Assessment also provides motivation to learn as it makes educational activities purposive and accountable. For example, a study by Wilson (1998) found it was not adequate to just provide online students with a discussion space. They needed to be given a purpose for using this space. This could include required online participation for marks or group assignments requiring online communication. Assessment motivates activity.

Assessment is a crucial mechanism of institutional accountability. Assessment is a structural property (and constraint) of higher education as it articulates an individual course to the institution and larger social structures.

Assessment, in the form of a grade, is necessary to make a course "for credit", and part of a larger program, degree and, in the case of Edu 555, certificate. Assessment is the

measurable output of education. Many educators teach to the assessment (Postman, 1995), and students often come to expect to learn for what they will be assessed on (Millar, 1989). Assessment surrounds teaching and it is a non-negotiable requirement for instructors working within a formal educational setting like DMI. Assessment creates an important frame for any teaching as often, it connects a specific course and its content with the larger function and process of education. The institution requires this frame but DTU defines it. The Edu 555 course design team makes assessment choices before instructors are involved. An instructor may know specific exercises or activities that could allow students to learn a subject in more depth, but these activities cannot be used for assessment or at all.

Set Content

Each instructor is given a copy of the books and course package for Edu 555. These were non-negotiable. The pedagogical premise of the course is that using e-learning raises basic questions about educational goals and processes. Students were encouraged to critically examine the social, cultural and

economic impact of e-learning in educational settings. At the outset, students and instructors are told the objectives, what they should get from the course by the time it is completed. In particular, students were expected have a deeper understanding of key social issues about e-learning, including: its implications for teaching and learning; access to technology; commercialization of education; the uses and abuses of technology; issues related to gender and technology. To achieve these goals, the course was structured in the following way:

- Week 1: Course introduction
- Week 2-3: Theoretical perspectives
- Week 4-5: Selecting from and brainstorming on various social issues
- Weeks 6-12: Analyzing three social issues
- Week 13: Summary and Synthesis

After an introduction to the topic of e-learning, students were exposed to theoretical perspectives by which to analyze technology use generally, and in education specifically. Next students began initial research on e-learning issues, partly by brainstorming given topics and reading key articles. Then during the bulk of the course, students read about and discussed each key social issue.

The course had specific goals, readings and assignments and a timeline for completing different topics and readings. There was limited flexibility about what could be taught as required readings and assignments were pre-selected.

Teaching Online

Teaching online is new for most people, so DTU provides a "Tutor Handbook" to help instructors teach in this unfamiliar approach. Courses are designed so instructors had several teaching options. There are recommended ways of teaching online that are approved by the design team. The handbook suggests that an online instructor can act as 1) monitors, 2) facilitators or 3) active participants in the course discussions.

As monitors, instructors rarely made comments, and often seem to be invisible to students, as students generally regulate and facilitate their own discussion.

As facilitators, instructors would comment at least once during each visit to the discussion forum. They would play a more

active role in acknowledging postings and comments from students, and encourage those who posted less, by addressing their postings directly.

As active participants, instructors were hands on, posting regularly, often initiating each discussion topic, especially if the students were having difficulty with the material or lacking confidence about the online course format.

For Edu 555, DTU encouraged instructors to be facilitators. However, a perusal of discussion forums indicates this was not the case. The course began during the last week of August and finished during the first week of December. Most messages, 79%, were posted in September and October (see Figure 4). Once the course was underway, by mid-September, the instructors became nearly invisible posting only four messages in three months, or 16% of all their postings. Table 6 indicates instructors posted six messages in August (12.7% of the months postings) and 15 messages in September (3.2% of postings) as a way of introducing the course and encouraging students to participate in the discussion.

Figure 4: Total postings by instructors and students by month

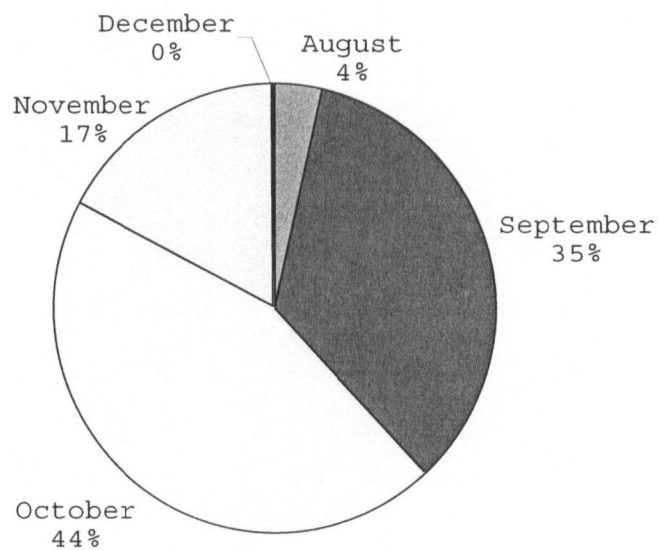


Table 6: Monthly Postings by Instructors in Discussion Forums

Month	Instructors' Postings	Total Postings by Instructors and Students	Instructors Postings as Percentage of Total Postings
August	6	47	12.7
September	15	462	3.2
October	2	597	0.3
November	1	228	0.4
December	1	2	50
TOTAL	25	1326	1.9

This was partly a function of the course design. Students were asked to mediate discussion topics in the course. The instructor decided to fade to the background during these discussions, which began in mid-September.

Discussion forums were only one space for instructor involvement. There were dozens of personal emails and phone calls among the instructors and students. But the forums were the only space where the instructor monitored, facilitated or actively participated with all students. Course data indicates instructors acted as facilitators at the beginning of the course and monitors afterwards.

Study Skills

Edu 555 students were given a document to help them learn effectively in the course: *Student Study Guide for Distance Learning*. It provided detailed administrative information (e.g. how to change courses, how to use the library), an introduction to basic concepts about the Internet, and recommended study skills. Students were informed that the course would involve a lot of reading of articles and book chapters. They were

encouraged to skim and develop a rough mind-map of an article before reading more carefully. These and other study skills were useful but were difficult to transfer to reading postings on the monitor. For example, the study guide encouraged students to make notes in the margins of readings. It was not possible to make notes from discussion forum postings in the margins; notes that might have helped students organize the immense information from the postings.

Summary

Before an instructor begins teaching an online course at DMI the following decisions have already been made: the class size, assignments, course readings and activities. Furthermore, the instructor is given recommended approaches to teaching and students are given recommended approaches to studying.

Instructors are accountable to both the Faculty and DTU and are paid partly according to the number of students who complete the course. The institution creates many frames that constrain how an instructor can teach.

CHAPTER 5

TECHNOLOGICAL FRAME FACTORS

The most interesting findings from the data were about factors that are part of the technological frame. Some technological factors are evident before the course begins. Others are manifest in the 'practice' of the course. These included: place-independent access; asynchronous communication; group viewing; text-based communication; and the amount of time required to communicate.

Technical Requirements

Edu 555 was designed and delivered on a WebCT platform. Any student who took the course had to have access to a computer with a 28.8 kpbs modem and could run at least Netscape Navigator 3.1. Internet Explorer could not be used to access the course. Students were required to participate substantially in online discussions, make a presentation online and do group-assignments. This meant every student had to have an email account (free accounts were fine) in order to take this course.

Place-independent Access

If students could access the technology they could be located anywhere in the world. This was an advantage and reason for having Edu 555 online via the Internet, instead of online via computer-conferencing. Five postings, of 50 randomly sampled discussion forum messages, were from students who talked about their cultural or geographical perspective on a given issue. These students were from Hong Kong, Chile, USA, Britain and Mongolia. Edu 555 enrollment documents indicate that students taking the course were located in ten different countries, with the majority being from Canada and Chile. The Internet made possible the collaborative development and delivery of the course by DMI and a Latin American University. The technology defined who could be a potential student much more broadly than was possible by any other two-way media used for distance education.

The Internet allowed for more culturally diverse students, and this broadened the perspectives brought to the discussion. At the start, during their introductions, all students made a point identifying where they were located. Several students commented

on how their physical location and cultural background affected their participation, especially those from outside the Euro-English speaking world. For example, Baldwin introduced himself stating:

Hi Everybody, My name is Baldwin Chan and I'm from Hong Kong. This is my third course with DMI online and look forward working with you all through the course. As for myself, I run my small company back in Hong Kong providing solutions to assist both the institutions and corporations to put their coursewares online. Well...here I'm and ready to take on the challenge with all of you.
(Posting No. 355⁷)

For other students, their place-independent study meant some course issues and topics were unintelligible or even irrelevant. One course topic was corporate involvement in education via e-learning, to which Cristina in Warsaw responded:

In Poland, partnerships of corporations and educational institutions are still almost non-existing and so not considered a problem.

Thanks to tough economic situation, most of local industries are concerned mainly by current problems of their own survival and generally they are not trying to invest into, or trying to start business within e-learning (Posting No. 4017, sic).

⁷ Note that posting numbers did not correspond with the number of postings in the course.

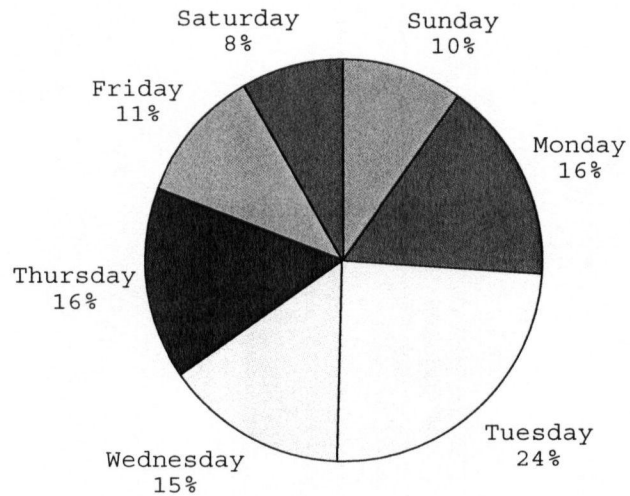
Being able to access the Internet from any place is one of its most appealing attributes. Communicating from anywhere allowed for a broad range of students in Edu 555. However, this presented challenges to the instructors. Students not only brought diverse knowledge, which is common in many courses. They also brought culturally diverse communication styles. This has become a common issue with Internet-based courses and recent research is emerging about how to teach and moderate in a global online classroom (see Mason, in press).

Asynchronous Communication

Many technologies used to deliver DE can give students flexibility in their time and location of learning. The advantage of online learning is that there is evidence of when students were involved in, at least part of, the course; when they logged on the course website and posted to discussion forums. Other activities involved in taking the course are not documented, such as when students are reading course materials, writing their assignments, or emailing each other privately. These are not done mainly on the course website. Figure 5 shows

the days when students posted messages to the discussion forum. It indicates messages were posted throughout the week.

Figure 5: Day of posting to discussion forum



It is noteworthy just how many students submitted postings on the weekend. 18 percent, or nearly 250 messages were posted on Saturday and Sunday (see Table 7).

Table 7: Day of Postings

DAY	NUMBER OF POSTINGS	PERCENTAGE
Sunday	135	10
Monday	213	16
Tuesday	320	24
Wednesday	201	15
Thursday	216	16
Friday	147	11
Saturday	109	8
TOTAL	1341	100

It is unclear why students posted more on Tuesday than other days. A perusal of course assignments indicates they were due on various days of the week, and not especially on Tuesday or Wednesday. This was also the case with course brainstorming assignments and an assignment to present and moderate an online discussion, both of which required posting messages.

The course lasted a total of 14 weeks. This meant there were about 96 postings per week to the discussion forum or just under 14 postings per day. Given that this discussion forum had 20 students, the average posting per student was 4.8 messages per week. The bulk of these were posted in September and October, from Monday to Thursday.

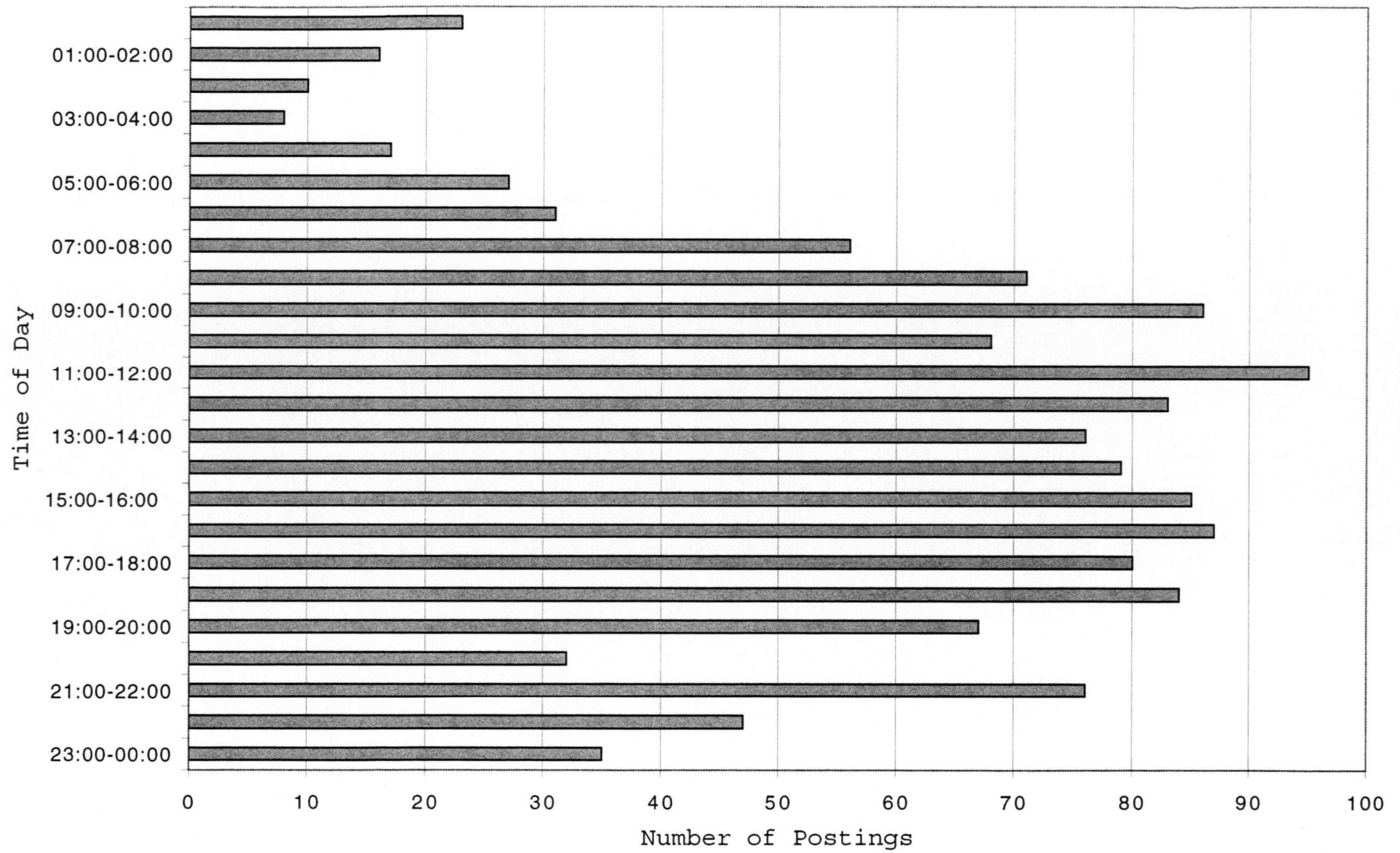
The Internet allows posting anytime, any day. An aggregation of what time students posted is indicated in Table 8. It should be noted that postings were recorded at Pacific Standard Time according to when the server at DMI received the message. However, not all of the students were living in that time zone. Students posted comments at all times of the day with the bulk during midday to early evening. By 7:00am, students started

Table 8: Time of Postings

TIME OF DAY	NUMBER OF POSTINGS	PERCENTAGE
00:00-01:00	23	2
01:00-02:00	16	1
02:00-03:00	10	1
03:00-04:00	8	1
04:00-05:00	17	1
05:00-06:00	27	2
06:00-07:00	31	2
07:00-08:00	56	4
08:00-09:00	71	5
09:00-10:00	86	6
10:00-11:00	68	5
11:00-12:00	95	7
12:00-13:00	83	6
13:00-14:00	76	6
14:00-15:00	79	6
15:00-16:00	85	6
16:00-17:00	87	6
17:00-18:00	80	6
18:00-19:00	84	6
19:00-20:00	67	5
20:00-21:00	32	2
21:00-22:00	76	6
22:00-23:00	47	4
23:00-00:00	35	3
TOTAL	1341	99

posting in greater numbers (see Figure 6), and did not really slow down until after midnight. The exception was a dip in postings from 8:00pm to 9:00pm. Nearly half the students (48%) posted messages during the conventional workday of 9:00am to 5:00pm (Pacific Time). This may indicate that many students,

Figure 6: Time of Postings



all of whom were adult learners, posted messages during the workday, perhaps from the office. Interestingly, busiest time was between 11:00am and noon. This is the same hour most businesses state is their busiest time for orders, phone calls, and inquiries. It is also important to note that over half the students did not post during the conventional workday. And many postings, over 10% took place after 10:00pm, before many people would go to sleep. But it is difficult to determine the relevance of this finding as several students were posting from other time zones. An accurate assessment would require reorganizing data to the local times from which students sent postings.

An institutional requirement of DTU is to provide courses in a flexible format. Edu 555 as a whole did have set start and end times, particular 'Blocks' and assignments. Still, within these frame factors, there was a lot of flexibility for students and instructors to communicate with each other. This was made possible by the asynchronous characteristic of the Internet. The choice of technology was beyond the control of instructors, but it framed the instruction by removing a level of time

constraints. Instructors and students had more flexibility, than in a classroom-based course at the university, about when they are involved with the course. They clearly took advantage of this.

Text-based Communication

It is striking how important written text was to course instruction and communication. Instructors and students spent nearly all their course time either reading articles or reading and writing in front of a monitor. In Edu 555, the written word was the foundation of Internet-based teaching. This logos characteristic of Internet-use shaped how the course was experienced and people communicated. Random and stratified samplings brought out several themes related to text-based communication. These include: the importance of writing style, grammar and vocabulary; lurking; students incorporating in their messages quotes from previous postings by other students, weblinks, and other references; and the thoughtful, reflective quality of postings. Each of these will be addressed individually.

Writing Styles

Reading through the messages, instructors and student postings were conspicuous for how much their writing skills varied.

Writing styles were stark in part, due to the presence of students who had experience with English, especially not native English language speakers. For example, in responding to a posting by Bruno, Josefina from Chile stated:

My experiences is concerning with the building of so exotic virtual classroom at some military schools, expending hundred of thousand of dollars and no one know what to do with them! I mean in terms of teaching, design and getting the maximun of them to benefit students' learning.

As Bruno says "human strategy" to show power and possibilty to adquire fancy resources. But, what can we teachers do, if those expensive equipment are not accesable for us? We are more disable than those mentionet by Maddalena Lattuca, I think this happens because this "infraestructure" belongs to the government (read armed forces) and they believe this is not public property. Probably this aswers a little Maria's question trying to iddentify who the government body is. An this worries too much me specially when this kind of government is becoming so strong little by little. (Posting No. 5113 sic)

All students and instructors made spelling, grammatical and at times vocabulary mistakes in their postings. However, these errors were more frequent and pronounced from some ESL speakers. The point is not to discriminate against ESL students. It is to indicate that grammar and vocabulary were more notable because

there were no visual or audio options for students to communicate to the class, only the written word. Edu 555 was a print-based Internet course, so reading postings made one very aware of students' writing styles. Writing has more rules and is a more structured and difficult form of communication than oral speech. Writing also creates an enduring record which oral communication, usually ephemeral, does not. Writing has more accountability built-in to the medium than oral speech because the communication standards are greater and it is easier to review. Students can passively listen to an instructor or other students in a classroom, but reading messages required more concentration for everyone. Generally, then, writing styles are noticeable because the expectations are higher and messages can be and are re-read by students, instructors (and myself as a researcher).

Lurkers

Several students talked about lurkers, students who may be reading postings, but not sending messages and participating in discussions. Some had concerns about it, but those who lurked

defended their practice of 'active listening'. One student stated she would read messages but not post any because she did not think she had much to contribute on the topic. She indicated that this should not be taken as a lack of interest in the topic. Huang stated:

If someone has accessed a course some 50 times but has made no posts (is this the same as lurking?) does this necessarily mean they aren't interested? Perhaps there is a deeper problem. I had this kind of experience myself when I started to learn online. For 19 days, I logged on a lot of times, but did not say a word. There was a "deeper problem". I analysed myself. First is the culture shock. I am from China, students here [in Edu 555] are used to such kind of discussions, for me it is a new experience. (Posting No. 1917).

Lurking is about privacy and access and an attribute of the Internet. The course site was password protected so only students, instructors and the DTU web team had access. Among this cohort, it was not possible for students to know who was online visiting the course at a given time, or who had read postings. Some programs for the Internet (e.g. ICQ, MSN Messenger, Yahoo Messenger) allow users to know who within a group is online at a given time, potentially available for real-time interaction. This was not possible with WebCT version 1.3 used for Edu 555. DTU web programmers and, with some effort,

instructors could find out when students accessed the course's WebCT site and discussion forums, but students could not.

Lurking in Edu 555 was a manifestation of the technology; the Internet is both a public and private medium. Listening and speaking in a classroom are both public activities; others in the room can know who is, at least physically, present and thus a possible recipient of information. In Edu 555 instructors and students spent most of their course time physically alone. At the same time they had a common digital space to read and write messages, accessed visually on monitors. Online writing was done privately and posted publicly. Reading, however, was private and did not have any public manifestation that other students could see. The technology allows people to participate in group space via writing, or alone via reading.

Quotes and References

Students regularly cited each other or the instructor in group discussions. Consider the following response by Cheryl to Susan's posting about the topic "education and socialization":

>First, how are we defining the term socialization,
>specifically for this forum?

I too question what this means in terms of the forum. I will assume that it approximates what is outlined in the article by Wegerif - "understood as socially situated, learning can be described, following Lave and Wenger as a process of becoming part of a community of practice" ... Wegerif claims that forming a sense of community, where people feel they are treated sympathetically is a necessary first step for collaborative learning.

>Doesn't it depend on the learners? Their ages, if they
>are self-directed learners, how educated and experienced
>they are, etc.

>Personally, I don't feel at this point in my life and
>taking the type of training I'm taking, that anyone else
>should be responsible for my socialization (very
>UnADEDish).

I tend to agree ... largely due to the way early socialization has shaped me ... however, I'm open to possibilities.

(Posting No. 4194, sic)

Susan's original posting is indicated by the symbol >, now prevalent in most emails. It was common for students to respond point-by-point to a previous posting in the course. This was fostered by the course assessment structure, which required group participation. However, it was made possible by an important attribute of the Internet, and more generally of computers; reproducibility of text. WebCT, like email, allows students to respond with quoted text easily in their messages. This meant students could and often would respond point-by-point

to a previous posting. The interaction could potentially allow for deeper level communication because the technology made it easier to stay 'on topic'. The course was based on electronic text, and this "allows for substantially greater flexibility of feedbacks, interaction and reconfiguration of text... thus altering the process of communication" (Castells, 1996, p.31, sic).

Students would often include quotes from readings (as Cheryl does), make reference to books or include links to other websites. At times these were used to share information and perspectives. At other times references and links were used to buttress or clarify a students' position on a given topic, as Geoff did to Mary:

Mary: First, my comment was based on a recollection of "something in the paper" but you did prompt me to examine my case a little more thoroughly. Whjat I think is going on is that while enrolment may be the same or increasing, it is not increasing at the same rate as other faculties. The president of Carleton U here in Ottawa states in <http://www.carleton.ca/cu/aboutus/president/gfb2000/>

"Figure 2 [in the Presidents report] (undergraduate enrolment by programs) demonstrates the rapid growth of engineering and high technology students as a proportion of our student body..."

(Posting No. 3854. sic)

It was quite common to embed such links and references in messages. 108 links to websites were included throughout the 1346 messages in discussion forum. Even though many postings would have more than one link within it, a conservative calculation is that over five percent of all postings included a link. Including links allows students to reinforce their perspective and also broaden the conversation. This was possible because the Internet easily links from one site to another. The Internet has been called "spineless text", meaning the content is unbounded, and can go on to infinity.⁸ Students and instructors used this feature of the technology regularly as a part of their communication.

Thoughtful Communication

Some students could be quite casual in their communication, but for the most part it appears they spent a fair amount of time crafting their messages. Most postings were on topic with the general subject-matter of a given block and previous postings.

⁸ Amusingly there are now several sites called "The End of the Internet". They pretend to be last page of the Internet, and basically try to bound this infinite medium. One feels a sense of relief upon seeing such a website. See for example <www.shibumi.org/eoti.htm>

For example, on the topic of access to e-learning, Stephen

wrote:

Lydia introduces us to CRIMP; a list of reasons why social access is uneven and is thus an obstacle to participatory democracy; indeed! Although Ancient Athens democracy was open only to male citizens, we hope to do better. John is right: social access and participatory democracy are linked.

I found out that in Florida, 1/3 of black males are not allowed to vote (because they have a criminal record, are not registered or whatever), poorly educated voters had a hard time figuring out some of the ballots, and when they knew they had made a mistake, many did not have sufficient self-confidence to bring that up right away with the authorities but waited until a movement was formed.
(Posting No. 5216)

He posts a considered message, responding to another students comment on the topic, and broadens the discussion by including historical and contemporary references.

The following comment was posted by Greg about Ursula Franklin's book, *Real World of Technology*:

I thought Franklin's book was essentially a commentary on contemporary political economy, and technology was the particular spectre or purview for her analysis.

I like her definition of technology as practice. To me it keeps the concept of technology closely integrated with the humans who create it. I think, however, that she tends to gradually separate the two as she becomes more and more displeased with the state of human affairs... to the point where she is blaming technology instead of people.

A medieval mercenary could be seen as a fairly holistic technology. Maybe they make their own swords and actually

do all the killing, but they can still be employed to do bad things... like allow someone to monopolize resources.
(Posting No. 1319)

This was a thoughtful review of a course reading. These examples were two of several such messages from randomly sampled postings. An in-depth analysis of all postings for the course indicated such reflective messages were quite common. Structural reasons made such rich communication possible. First, the asynchronous character of WebCT allows instructors and students wait-time to reflect on and compose their postings. Immediate responses were not expected. General protocol for Edu 555 was that the instructor would respond within 48 hours of a question or request during the weekdays. There were no set norms about when students should respond.

The written word has more accountability than oral communication. People referred back to precisely what was said. Students may have been more considered in their postings because of this. They may also have been hesitant to get involved in discussions because many postings were thoughtful and well-crafted.

Workload

Some students commented about how much time the course took.

Students were told at the beginning of Edu 555 that they would need about 15 hours a week for course readings, discussions and assignments. Yet several of them expressed, in the discussion forum, that they ended up spending more time on the course than they expected. Alain stated,

I feel a pressure to log on every night. If I don't keep up with the postings, I feel the discussion gets ahead of me. It takes a lot of time to read all of the postings.
(Posting No. 111)

Ron captured the sentiment of several students who felt overwhelmed by the volume of postings when he said:

I'll join in the "overwhelming" echo... I'm taking two online courses this term as well. I thought my email at work was daunting!
(Posting No. 121)

It was not possible to access log-in data to examine the amount or duration of time students spent online. Quantitatively, students may have spent the same or slightly more time as they would in a face-to-face course. Online reading and writing is however, qualitatively demanding. It can take more work to write than speak, and even more work if one is including references and links. The bigger issue with workload was

reading; it appears that students and instructors spent a lot of time reading all or even many postings. The sense of increased workload is partly a function of course design but also technology. Reading is generally time-intensive compared to listening, but more so on a monitor. Historically, it took decades of designing text and graphics to recognize margins were important in written publications; the human eye prefers to have space to rest before and after each line. The monitor facilitates a different reading process because it makes different demands on peoples' eyes. Reading on a monitor can be taxing fairly quickly because of its attributes like: the light behind the monitor glass; the need to scroll; the varied layout of postings. The layout and design of text in the discussion forums is relatively primitive. It still requires a lot of time to participate in this visual space.

Summary

Before Edu 555 started, many technological frame factors existed that later became constraints and possibilities during the course. These factors included: being able to access the Internet anywhere and anytime; basing the course on electronic,

written text; using asynchronous communication; and the public and private quality of the Internet.

The Internet allowed for anywhere, anytime access to course content and discussions, for those who could afford (access to) the technology. This made it possible for students from ten countries to participate in the course and for DMI to collaborate with a Latin American University in designing and delivering the course. Students posted messages throughout the week, including a substantial number on weekends. It also made it possible for instructors and students to be involved with group discussions anytime. They participated in class throughout the day, posting messages mainly from 7:00am to midnight. It was not possible to gauge when students read messages.

The WebCT discussion forum was based on the written word. This meant people's communication style, i.e. their writing skills, was noticeable. This was partly a trait of writing, which has built-in to it more rules for communicating than does spoken work and produces an enduring record. The course was not just

text-based communication but electronic, which meant text could be easily reproduced. This allowed for point-by-point, on-topic, interaction as students reproduced each other's text in their postings. Reproduction of text also allowed students to post quotes from readings and links to other websites. But the course was also qualitatively more work partly because it was based on electronic, written text; reading on a monitor generally takes more effort than reading on paper or listening do.

Finally, communication was asynchronous and this allowed for more wait-time to reflect and post thoughtful messages.

Asynchronicity also makes the Internet both a private and public medium. People can read and compose alone, but also 'show themselves' to the group by posting messages.

These traits of the technology fostered thoughtful interaction. These were all technological factors that framed the course.

CHAPTER 6

ANALYTICAL FRAMEWORK AND CONCLUSION

In this final chapter I briefly consider the other two frames: the experience of students and instructors; and worldviews about education. Then I discuss the analytical framework that emerges from a frame factor analysis, and end with the conclusion.

Students and Instructors Experience and Worldviews

Both instructors were specialists in the field of e-learning and had taught Internet-based courses before. They felt comfortable teaching in this medium, and chose to take a fairly hands-off approach. As the data indicates, their presence in the discussion forum was modest. They let the course materials and students do most of the teaching. They saw themselves as playing a supportive role for essentially self-directed learners. For the most part, they communicated with students one-on-one, via emails, phone conversations and in comments and marks about assignments.

All students in the course had at least an undergraduate degree, as this was a prerequisite. Their knowledge level about

education varied immensely. For some it was their first education course, and at the other end of the spectrum two students had a doctorate in education. Most students were either doing their Masters of Education at DMI or looking for a certificate to help them enter the field of e-learning. Some people who took the course were interested not primarily in education but technology. Many students who did not have experience learning online expressed concern and but also excitement about using the technology. Cheryl initiated one conversation on the topic, instigating a discussion about learning online:

I am a graduate student in the School of Nursing at UofA . With the shortage of nurses at this time, it is very difficult for students to get time from work to attend classes. I am excited about this course, though a bit apprehensive.
(Posting No. 109)

I agree with Cheryl...the overwhelming feelings of the medium can be too much to handle at first....it is still new.
(Posting No. 114)

The worldview about education also framed the course. Education is a field where everyone has an opinion. And the instructors never presented themselves as experts. This was partly because

of their teaching style and because the field of e-learning is adequately novel that few could claim any long-term expertise. So even though course content was fixed, there was no sense throughout the course that only one perspective was right for learning about education generally and e-learning specifically. The subject matter does not easily lend itself to such an objectivist approach to knowledge. And indeed many of the postings were quite anecdotal, if still thoughtful. On the topic of gender and technology, Scott told this story:

Hello There.

I have some comments/observations on gender and technology. Being involved in teaching computer apps to junior and senior students in mid Waterton Island has caused me to reflect on these issues. I have found that young women engage and run with graphics based software and activities like Adobe Pagemaker ect. But are hesitant to engage web composes and programs like Dreamweaver and communicator. While the young men seem to do well with auto-cadd and drift toward creating graphics in the Web-browsers, they as a group shy away from intuitive software.
(Posting No. 3659. sic)

On the same topic, Linda shared this anecdote:

I live in a large apartment complex in Kingston Ont. where there are many seniors. I am finding that it is the older women rather than the older men who are active with email and are learning computer technology because they enjoy the ability to strengthen relationships with friends and family through this medium. The retired men on the other hand are largely "in denial" regarding computers and seem not to want to risk being considered incompetent with this technology and perhaps lose face, so, many of them do not bother to learn about computers.

It takes time to think within the new technology and it also requires knowing the language of computer speak. As for myself - I can now make decisions on equipment, ask for help by pin-pointing to a specific problem and no longer blabber incoherently when I have a technical problem. It really took a fair amount of dedication to learn to speak the technical language as well. Some insight on computers and gender - from K-town..
(Posting No. 3383)

It was seen as appropriate, enriching and normal to share personal stories to discussions about most educational topics. It is normative to the worldview that views education as a subjective field of study.

Analytical Framework

Several constraints and possibilities in one online course have been identified. As much as possible, I have tried to focus on factors that relate to the frames of the course and not to decisions made by instructors and students. The focus has been on structure, not agency. Instructors can teach creatively and effectively in Internet-based courses but they do so in conditions not of their choosing. A study of Edu 555 indicates many frame factors directly and indirectly limit what kind of teaching was possible. Useful research exists on how factors frame adult education in classroom settings. The new feature of

this study was to look at frames for Internet-based teaching. The biggest differences from classroom settings and Internet-based settings are how the institution organizes and supports courses, and the impact of technology on teaching. These were the focus of this study and its output, an analytical framework.

Many useful themes emerging from this research may be relatable to other Internet-based teaching situations, and not specifically to a graduate course in education. The Internet is a dynamic medium. Adult education on the Internet is and will be a complex and evolving field. In this context the following analytical framework is a tool to guide decisions by instructors and planners. The framework consists of four questions, a tetrad, about factors that frame teaching before instructors or students begin an online course.

1. What teaching decisions does the organization make before you begin the class? In most organizations issues like class size and the need for assessment are made before an instructor is involved. With Internet-based DE, this includes decisions about what will be taught (i.e. the curriculum), specific

assignments to be assessed, choice of technology, and recommended approaches to teaching. How might this shape your teaching?

The rest of the analytical framework addresses how the choice of technology can effect how instructors and students communicate.

2. How will the technology affect people's participation level and their quality of interaction? Is the technology a public

medium, private medium or a combination of public and private?

Most one-way media (see p. 39 above) are private, meaning a user can or does experience it alone. Most two-way media are

synchronous and public, meaning one is aware of who is

participating and there is no wait-time between communications.

The Internet is a combination of the two. Internet use in other courses may vary from this one, where the WebCT platform was

asynchronous. The software used can affect people's

participation level and their quality of interaction. Does the

communication software have wait-time between interaction or is

it immediate? How much time do you and students have to

respond? This affects when and where you and students can communicate. How might this effect group dynamics?

3. How much accountability is 'built-in' to the communication?

Is the communication predominantly ephemeral or enduring? Many media are ephemeral while others leave an enduring record.

Furthermore, digital media allow for easy and commonly used reproducibility of text (and now audio and video files with special equipment). This can create accountability 'built-in' to all communication. How will people in the course receive information (listening, reading or both) and send information (i.e. talking, writing or both)?

4. How labour-intensive is the medium? Some technologies take

more time than others. Media that require writing will take more concentration (also called time-on-task in DE literature).

What will it mean for instructors' and students' workload to communicate in this medium?

Conclusion

Good technology like good organization is invisible. If working effectively, we do not notice it. If, however, email goes down or pay cheques do not appear at designated times, we are aware of the existence of IT support and the finance office respectively. Internet-based teaching is adequately novel that fortunately we do notice both the organization and technology; we are aware of structure as well as agency. It appears as if this approach to teaching will continue to grow, at least in the middle-term and certainly in distance education. So it will still be important for adult educators, especially those who see radical potentials for the Internet, to understand how this context frames their teaching decisions.

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