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THE PUBLIC COLLEGE
SYSTEM OF NEWFOUNDLAND AND LABRADOR.

**PERSPECTIVES OF DISTANCE LEARNING: A STUDY OF
ADMINISTRATORS, INSTRUCTORS, AND STUDENTS OF THE
PUBLIC COLLEGE SYSTEM OF NEWFOUNDLAND AND LABRADOR.**

by

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Studies in partial fulfilment of the
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ABSTRACT

The purpose of this study was to examine the direction of distance learning in the public college system of Newfoundland and Labrador as perceived by administrators, instructors, and students.

Data were collected using three methods: (a) interviews, (b) student survey, and (c) Delphi panel. Interviews were conducted with ten persons who had some special knowledge about the direction of distance in the public college system. A random sample of 282 students was selected from the distance learning population of 955 for the 1995-96 academic year. Of these 228 students were surveyed, for a response rate of approximately 81%. The survey presented an opportunity for students to voice their opinions and provide feedback concerning distance learning courses in the public college system. In the Delphi process, a sample of 14 campus administrators was administered a structured questionnaire in two rounds, with results from the first round being used to help achieve convergence in perceptions of the future directions in distance learning.

The data indicated that administrators, instructors, and students all concurred that distance learning has a place in the public college system. However, with distance learning in the early stages, it is not at all clear what directions this will take in the future. Administrators and instructors were cautious in their views about distance learning. The student survey indicated

that students would avail of courses offered through distance learning. However, students indicated very strongly that the college should offer only some courses through distance. The Delphi panel members echoed the views of the administrators and instructors. A cautionary approach of building one block at a time is required.

The recommendations reflect the research findings about distance learning in the public college system. These recommendations include:

- (a) continue to provide accessibility to distance courses throughout the scattered campuses across the province but at a moderate pace; since both technological change and the cost-effectiveness question were in a transitional phase,
- (b) monitor and review technological advancements to determine the need to merge with existing college technology; implementing a combination of methods for distance courses provides students with a choice,
- (c) further study on the cost-effectiveness of distance learning; the actual cost-effectiveness of distance learning requires study relative to the traditional approach and other methods,
- (d) monitoring of distance courses to determine the needs of students and employers; the college should contact employers to determine the assistance that can be provided - offering courses requested by employers and students sets the stage for increased participation rates, and
- (e) provide an enhanced communication system between instructors and students; this system should include direct phone numbers, e-mail, fax, and an on-line help service via the world wide web.

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Finally, I extend my sincere thanks to my Mother, June Barrett, my brother, Greg, and my girlfriend, Michelle Harnum, for their enduring support of my educational aspirations, even in times of my absence.

DEDICATION

This thesis is dedicated to the memory of my father, Ernest Barrett and my grandmother, Elizabeth Morgan. Their sense of family values and unequivocal support provided me with a solid foundation to pursue my educational goals.

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CHAPTER 1

INTRODUCTION

Background to the Study

The public college system of Newfoundland and Labrador, began its association with distance learning during the late 1960s. Campus facilities at the college were then used by Memorial University of Newfoundland to offer distance learning courses in the province. It was not until the early 1990s that the college became involved in the actual delivery of its own courses through distance learning techniques. Records of the public college indicate that the issue of accessibility was addressed through the expansion of physical, not technological, infrastructure. House (1986a) notes that "By 1970, the demand for vocational education had grown to the point where it could not be met by the existing vocational schools. The decision was made then to expand facilities" (p. 82). The college also offered programs to communities through off-campus satellite sites. These satellite sites were located in local community shopping malls, renovated churches, warehouses, and local high schools. The concept of learning at a distance, using a variety of new technologies, was not part of the fundamental philosophy of the college.

Recent distance learning courses and pilot projects at the various campuses of the college are steps toward new and alternative delivery methods.

These courses and pilots help to identify weaknesses in knowledge, technology, and applications of distance learning. From these courses and pilot projects will arise many questions that demand analysis and evaluation. Studies will be required to investigate the effects of these courses and pilot projects on the college community. The results of these studies will be relevant for decisions concerning the future of distance learning in the college system.

Statement of the Problem

The college faces major problems of fiscal restraint and budgetary deficit. Since the mid-1990s, there has been a gradual erosion of funding for the public college system. This was noted by the President of the college in the 1997 November issue of the "President's Newsletter": "(c) a provincial grant in aid that has decreased from \$49 million in 1993-94 to \$40 million in 1997-98, (d) Federal revenue that has dropped from \$38 million in 1993-94 to \$16 million in 1997-98" (Sparkes, 1997, p. 1). This reduction in funding has caused the college administration to cancel specific programs and close several community college campuses. This agenda of cancellation and closure undermines the primary role of the public college system: to meet the educational and economic aspirations of the people of the province. These measures are reactions to fiscal constraints, with no evidence of long term planning for the college system.

These imposed fiscal restraints and the consequent annual budgetary shortfalls have caused the college to focus on long term planning initiatives and new methodologies and technologies for future implementation. Herein lies the problem. These financial reductions give new impetus for considering alternate delivery methods. Nevertheless, there is a risk in making a decision to implement new methods when not enough is known about either the academic or the cost-effectiveness of these methods. Consultation with those already involved with distance learning within and outside the public college is required. There are critical questions that need to be asked about the future of distance learning in the college. These questions include:

- 1. What is the level of acceptance of distance learning by administrators, instructors, and students who have been involved in pilot projects and/or courses at the various campuses?**

- 2. What are the prospects that distance learning will become part of the programs of the college in the future?**

- 3. To what extent should distance learning be used?**

- 4. Will distance learning be cost-effective?**

In addressing these questions, this study attempts to: (a) provide insight for those involved in planning college methodological and technological approaches, (b) give a focus toward the future of distance learning for the public college, (c) provide insight on the perspectives of administrators, instructors, and students about the future of distance learning for the college, and (d) most importantly, give some sense of whether or not to allocate funds to establish distance learning programs in the college.

Research Questions

This study attempts to answer the following general research question:

What is the future direction of distance learning in the public college system of Newfoundland and Labrador, as perceived by college administrators, instructors, and students?

This general research question embodies several specific questions:

- 1. What improvements can be brought about in the programming initiatives of the college by using distance learning?**

2. What problems, if any, will distance learning create for the college system?

3. Will distance learning be cost-effective for the college?

4. Will students avail of distance learning programs established at the campuses of the college?

Purpose of the Study

The purpose of this study is to seek direction from those chiefly involved in the distance learning initiatives of the college. The information obtained will both timely and important to one of the key strategic directions for the reorganized public college system. This key strategic direction is outlined in the college "Organizational Framework and Operational" model. This model states that one of the key strategic directions is the "development of distance education leading toward the achievement of 'virtual' college offerings" (Provincial College of Newfoundland and Labrador, 1997, p. 1). The results obtained from this study will provide a sense of perspective about distance learning that exists in the public college and the community. This perspective will assist the college administration in the development and planning of distance learning for the new millennium.

This study further provides an opportunity for administrators, instructors, and students to offer their perspectives on the future of distance learning in the public college. In particular, students, were given the opportunity to voice their concerns about educational delivery methods. According to Evans and Nation (1993), "It is necessary to develop a student perspective: what looks to be rational to the planner may appear confusing and even irrational to the planned" (p. 23). An analysis of perspectives of administrators, instructors, and students was of considerable importance when determining college delivery methods. As Boone, Shearon and White (1984) state: "the complexity of human existence mandates that new visions and delivery systems be considered for action now, so that we may at least try to prepare ourselves for the unknown" (p. 8).

Significance of the Study

This study will help formulate and direct management strategies and tactics that can be used in distance learning. It is important that the college administration understand the views of the college community before making programming decisions. It is also important that they be aware of the level of acceptance for the innovation being piloted or proposed. Decisions concerning delivery methods that the college provides should respond to the needs of the community environment.

The administrators, instructors, and especially the students are the

participants in this process and the key to the success or failure of such an alternative medium for delivery. In simple terms, if you want the answer to a programming initiative you go to the heart of the situation. In this case, the administrators, instructors, and students involved in the college distance learning methodology were at the core of the process.

Resurgence of Distance Learning

The concept of distance learning is over two centuries old. One of the earliest known publications of distance learning was in the Boston Gazette of March 20, 1728, advertising shorthand lessons by mail (Verduin & Clark, 1991). It is generally believed that distance education began as an alternative to traditional classroom teaching. The goal was to provide students who lived in rural and remote areas with an opportunity for gaining an education (Lever-Duffy and Lemke, 1996). This goal has certainly been maintained over the years. Nevertheless, distance learning has not been free of criticism.

Despite its long history, distance learning is seen by some as a questionable substitute for classroom instruction. It is considered mainly as an alternative for those who can not participate in the real classroom (Lever-Duffy and Lemke, 1996). Distance learning as an alternative to the conventional face-to-face mode of learning is seen by some as a second rate approach.

Aside from the criticism, distance learning has enjoyed substantial growth. Crawford (1996) states that "Since the establishment of the Open University in the United Kingdom (OUUK) in 1969 and Athabasca University in Alberta, Canada in the early 1970's, there has been an extraordinary level of growth and development of distance education around the world" (p. 10). Willis (1993) further states that "the field of distance education has evolved worldwide over the past 10 years" (p. 3). This resurgence of interest is no doubt due to the social, political, financial and economic pressures of an ever changing world, the increased importance of education to society, and the major technological changes that have become an integral component of our society. Politicians, policy-makers, and ordinary citizens are demanding that our educational systems reform. As Evans and Nation (1993) state:

An implosion in education can be envisaged as all institutions reform within the emerging circumstances using technologies and approaches to teaching and learning which have come from other education sectors to their own. This could lead to the border between, for example, open learning and distance education becoming ever more permeable. (p. 10)

Governments, universities, and colleges need to explore new concepts, ideas, and views in the context of education and the economy. The socio-economic pressures of our changing economy require that education and the economy work in harmony. These specific pressures of our economy include but are not limited to: (a) the ever-increasing need for higher educational levels for a large proportion of the population, (b) the need to meet this increasing

demand in a cost-effective manner, and (c) the ability of schools, colleges, and universities to take advantage of the emerging technologies are creating enormous change and chaos socially, politically and economically.

Distance learning has become a classic example of a social and political issue. The main driving forces are accessibility and cost-effectiveness.

Technological advances are seen as the means of enhancing both of these.

Institutions are now ready to experiment with distance learning on a larger scale than ever before. The critical question, "Why is this so important at this time?", needs to be asked. Peters (1992) attempts to answer such a question:

Demographical developments and social, economic and technological changes and their acceleration have created new and pressing educational needs. The number of people who would like to attend universities is greater than the number of available places. In the next century the world's population will have doubled. Already now it is physically impossible to satisfy the educational needs of all people on the scale required. The governments cannot provide education for them any longer with traditional means and methods only. (p. 29)

The college can provide conditions that will allow students an alternative avenue for an education. This simultaneously contributes to society and the economy in general. Lever-Duffy and Lemke (1996) comment that "many community colleges, seeking new and better ways to serve their students, have embraced distance education as a way to ensure access and promote flexible delivery of quality instruction" (p. 1). This flexibility of the college will serve the student, the economy and society in general terms. The college can provide the

necessary access to training for the people of this province. This will allow the people to acquire the skills and abilities needed to enter the twenty-first century.

Public College System Restructuring and Distance Learning

The public college system in Newfoundland and Labrador has undergone several structural changes since its inception in the late 1960s. The system was initially built mainly to teach people to be skilled trades persons and at the same time develop their basic educational levels (House, 1986b). However, by the early 1980s, the general public was becoming very dissatisfied with the public college system (Quinlan, 1989). A provincial government white paper released in 1985, led to major changes in the post-secondary system. This was based on the recommendations of a task force on education established in the late 1970s (Crocker & Riggs, 1979, 1980). These changes were officially sanctioned through the Colleges Act of 1987.

In February 1990, the provincial government initiated yet another restructuring of post-secondary education. The reasons for this were explained in a news release which stated:

"Dr. Warren [the minister of education at the time] said that the three major principles which will guide the government's approach to post-secondary education are equality, excellence and efficiency. 'This Triple-E framework captures the fundamental challenges which face the education system', the Minister said. 'The Province's post-secondary education system must provide equality of opportunity, excellence in

**instruction, and better value for money through improved efficiency.”
(Government of Newfoundland and Labrador, news release, 1990,
February 26, p. 6)**

According to this release, the restructuring was designed to reduce restrictions on program lengths and to include a mandate for applied research. The proposed changes to the regional community colleges of the 1990 white paper were embodied in the Colleges Act of 1991.

In April of 1996, yet another reorganization of the college system was announced by the Provincial government. This time the focus was on the governing structure of the college. The goal of accessibility was to remain the same but the structure of the college system was to change. The previous five community colleges (Westviking, Eastern, Central, Cabot and Labrador) were to be merged into a single college system (Colleges Act, 1996). This new college system would operate under the direction of a single Board of Governors and a single central administration. The name of this new single provincial public college system was changed to the "College Of The North Atlantic" (now commonly known by the acronym, CONA).

The new mandate is to provide a focussed provincial direction for non-university, public post-secondary education (College of The North Atlantic, News Release, April 18, 1997). This new single provincial public college system offers approximately 70 full-time programs and over 300 part-time credit and non-credit courses. It has an enrolment of approximately 12,000 full and part-

time students with 700 faculty and 400 support staff (www.northatlantic.nf.ca, 1997). It has seven districts with 18 campus locations (Figure 1). These distinctive characteristics makes this new single college system among the largest post-secondary educational and skills training colleges in Atlantic Canada (Introducing College of The North Atlantic, Brochure, 1997). The present college system now incorporates courses and programs that encompass many aspects of the educational field.

These many attempts at restructuring suggest a lack of clarity and consensus on the role of the public college system. Several reasons may be advanced for this instability. These reasons are: (a) the willingness and dedication of the government to change the college system to be in tune with the times, for example, technological change, (b) to provide improved and up-to-date quality college programs related to the technological changes, (c) to provide for effective and efficient college services, and (d) to provide the best possible access to a college post-secondary education for the people of the province.

Distance learning lends itself to this continuous shift and change in the restructuring of the public college, especially accessibility and technology. Accessibility remains a goal of the college and through technological advancements distance offers the promise to enhance this objective. In particular, the potential exists that distance learning can be relevant to the college for the following reasons: a) the scattered nature of the population,

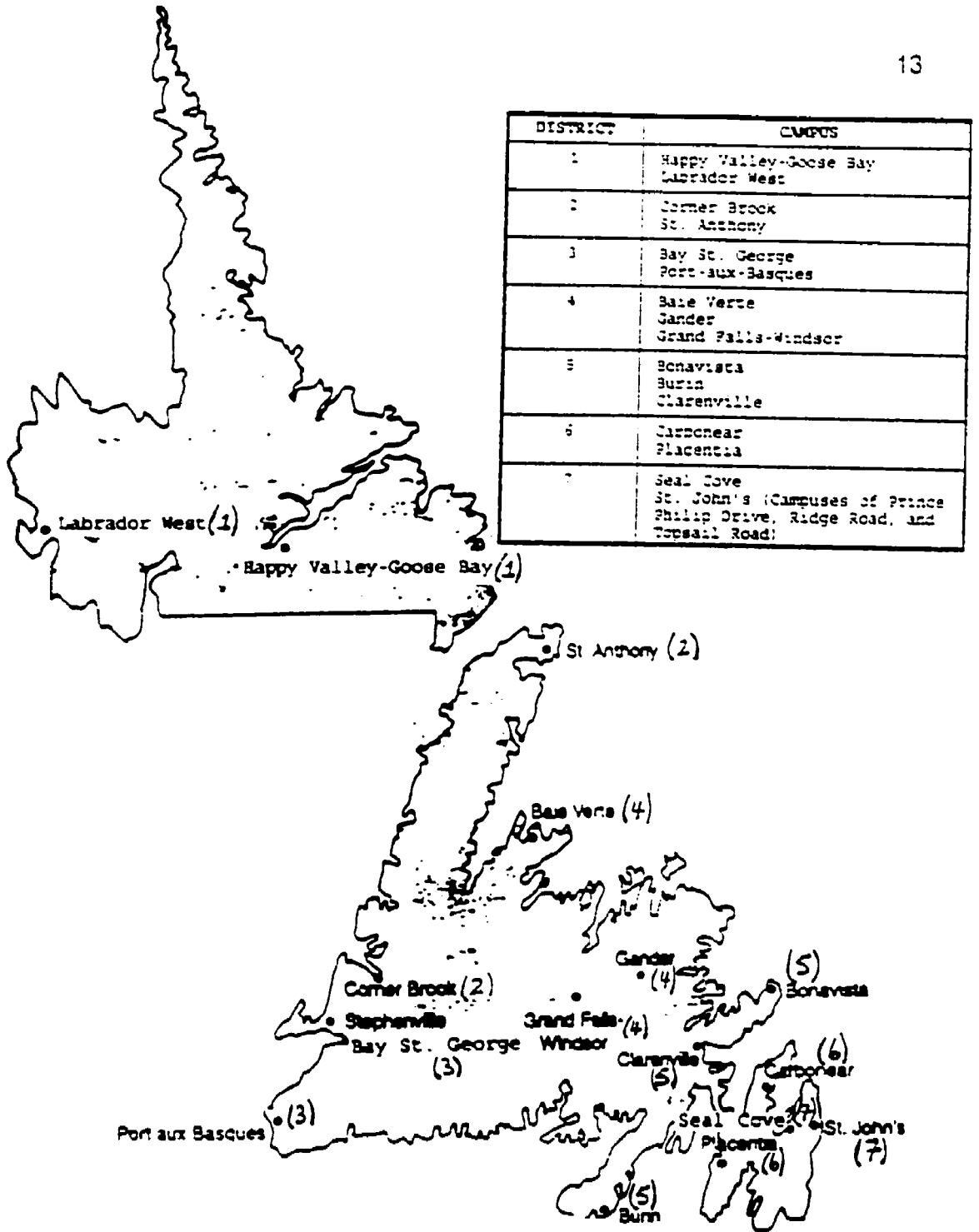


Figure 1. College Of The North Atlantic district and campus locations, 1997

b) the inability to offer program variety at most campuses, c) the problem of maintaining small campus facilities in many communities, and d) the cost of program delivery.

Although this is not yet clear, the possibility exists that the population can be better served through distance learning due to the distribution of the college campuses (Figure 1). For example, the instruction of a course can occur at one campus site with all other campuses of the college serving as local access points for students throughout the province. Students of surrounding communities need only to access the campus facilities in their region when required. The technological means exist at each campus for students to participate. This type of accessibility is practical and can probably overcome the inability to offer a variety of programs at each campus and the problem of maintaining facilities. Each campus of the college through distance learning can offer a wide variety of programs. The ability of local campuses to offer program variety may appeal to larger numbers of students enrolling in the campus region. The college could reasonably impose user fees for institutions offering courses at their local campuses to help maintain facilities. The cost of course delivery can possibly be reduced for the college through avoiding duplication of effort. It is not necessary for each campus to offer the same course. Distance learning can offer the potential through the distributed nature of the college that any

course offered from any particular campus can access the scattered population of the province.

The idea of providing access to education must be a founding premise of any community college, especially one designed to serve a widely scattered population. Dennison (1989) comments on the two factors driving colleges toward more accessible programs, "the first is the development of advanced technology to facilitate the process; the second is the changing character of learners and their needs: older, part-time, and with less flexible options for study" (p. 176). Dennison's second factor, in particular, exists throughout the scattered population base of Newfoundland and Labrador. Distance learning and the distribution of the college provides the potential to accommodate the need for access that exists in the province.

Definition of Distance Learning

Distance Learning - the terms distance learning and distance education have been used synonymously to describe non-traditional programs (Lever-Duffy & Lemke, 1996). This study has adopted Keegan's definition of distance education as follows, Keegan (1991):

Distance education is a form of education characterized by

- the quasi-permanent separation of teacher and learner throughout the length of the learning process (this distinguishes it from conventional face-to-face education);

- the influence of an educational organization both in the planning and preparation of learning materials and in the provision of student support services (this distinguishes it from private study and teach-yourself programmes);
- the use of technical media - print, audio, video or computer - to unite teacher and learner and carry the content of the course;
- the provision of two-way communication so that the student may benefit from or even initiate dialogue (this distinguishes it from other uses of technology in education); and
- the quasi-permanent absence of the learning group throughout the length of the learning process so that people are usually taught as individuals and not in groups, with the possibility of occasional meetings for both didactic and socialization purposes. (p. 44)

CHAPTER 2

LITERATURE REVIEW

The literature review for this study addresses five issues of distance learning: (a) language, (b) development and longevity, (c) accessibility, (d) emerging technologies that bring a new dimension, for example, e-mail and two-way interactive video, and (e) cost-effectiveness.

The Language of Distance Learning

The language of distance learning used in the literature can be at times confusing. Some terms such as distance education and distance learning are used synonymously, while other terms such as correspondence education, distributed learning, open learning and the virtual classroom have different meanings. This section uses definitions available in the literature to help clarify any misunderstandings associated with the terminology used throughout this study. The definitions are as follows:

1. Correspondence education, "For the most part, the term applies to forms of education in which the communication between students and teachers or institutions occurs by means of the written word and postal services" (Crawford, 1996, p. 15).

2. **"Distributed learning involves the interaction of students, facilitators and resources by way of a digital network without the usual constraints of geography and time" (College Of The North Atlantic, Building a ... Distributed Learning Service, 1997, p. 1).**
3. **"Open learning describes an approach to the provision of educational opportunities by which learners can study at the time, pace and place of their choosing, using a variety of instructional methods ranging from classroom courses to independent study" (Zuckernick, 1994, p. 2).**
4. **"Virtual classroom is a teaching and learning environment located within a computer-mediated communication system (Hiltz, 1994, p. 3). Students access the system from their personal computer by connecting via the telephone. "Participation is asynchronous; that is, the virtual classroom participants dial in at any time around the clock, and from any location in the world accessible by a reliable telephone system" (Hiltz, 1994, p. 3).**

Each of these terms had its roots in correspondence education. This expansion of terminology represents the continuous growth and development of distance education. Scriven (1993) remarks "Whatever terminology will be in use in 10 years' time it is clear that teachers and providers of educational services are adopting their own definitions" (p. 72).

The Development and Longevity of Distance Learning

Distance learning is not a new phenomenon. The literature clearly suggests that the practice is over 270 years old and has its origins in correspondence education. According to Willis (1993), "Despite the higher visibility it has received in the past several years, distance education has been around a long time and is a direct outgrowth of earlier print based correspondence study programs" (p. 8). Holmberg (1986) also acknowledges "... the basic origin of distance education is correspondence education, ..." (p. 1). Barker, Frisbie, and Patrick (1993) further concur "Distance education has its historical foundation in correspondence study ..." (p. 39). Holmberg (1986) further states "When organised distance education first occurred is not undisputedly clear" (p. 6). The earliest mention of what could be considered distance education was on March 20, 1728. Mr. Caleb Phillips advertised in the Boston Gazette his teaching of "The New Method of Short Hand" and that any person interested can have lessons sent to them weekly, (Battenberg, cited in Holmberg, 1986).

During the nineteenth and twentieth centuries distance learning continued to grow and develop through such pioneers and institutions as Isaac Pitman, Anna Eliot Ticknor, William Rainey Harper, Thomas J. Foster, Antigonish movement and the University of South Africa, (Holmberg, 1974, 1986; Verduin & Clarke, 1991; Sweet, 1989). Holmberg (1986) states "The founding of the British

Open University in 1971 marks the beginning of a new era, ..." (p. 29). The British Open University was the first major public correspondence institution and a significant step forward in the growth and development of distance learning. Correspondence continued to grow through print-based materials, however, advances in technology would begin to play a major role in learning by distance during the 1980s and 1990s.

In the 1990s, the public college system in Newfoundland and Labrador began to experiment with courses in distance learning using technological approaches through various pilot projects (M. Jewer, personal communication, July, 1998). In 1993, Memorial University of Newfoundland operated a telemedicine centre with 190 sites throughout communities in Newfoundland and Labrador, (Roberts, House, McNamara & Keough, 1993). This growth and development of distance in post-secondary institutions late in the twentieth century began to expand due to the evolution of technology.

At the turn of the twenty-first century the main driving force of distance learning is the technological advances that provide distance learning with the tools to reach larger numbers of people. Historically, distance learning has always provided this option but never had the appropriate tools to expand. Today's technology can invariably provide greater accessibility of education for all members of society.

Accessibility

The literature reveals that distance learning has existed mainly to provide access to education. Verduin and Clark (1991) state "Access to education is perhaps the most common rationale for the use of distance education.

Practically every distance education or external degree program involves an improvement in access to education at some level in a particular area" (p. 108).

This section will thus focus on access to education in terms of: (a) people in rural communities, (b) the growing needs of today's society; recognizing that a variety of delivery systems are required, (c) the barriers and attractions, and (d) the independence of distance learning.

Rural Communities. The collapse of the northern cod stocks in the early 1990s has severely devastated some rural communities in Newfoundland and Labrador. This event has changed the face of rural communities and helped create an active need for greater access to education. Lauzon (1991) comments "If education is to be a transformative force in the rural community, if it is to really strive to empower rural people, then it must strive for deep understanding as a product of learning opportunities" (p. 2). These opportunities for Newfoundland and Labrador require immediate attention. As Dunning, Kekerix, and Zaborowski (1993) state:

Providing access to educational and training for rural areas is not only a

matter of serving the needs of large numbers of people; it may also provide access for individuals who have the ability to significantly affect the quality of life for entire communities. (p. 237)

Dunning, Keekerix, and Zaborowski (1993) further state "Opportunities for lifelong learning are crucial to the survival of rural populations, whose problems of technological advances, displacement from agricultural occupations, and unemployment all require educational solutions" (p. 237). This is quite evident in rural Newfoundland and Labrador today, if we replace agriculture work with fisheries work. The absence of training opportunities will only mean deterioration of rural communities and relocation of people. For rural Newfoundland and Labrador access to education will become the key to economic growth and development. The college can provide for the accessibility to education through distance learning. Distance learning can thus become an important factor in the renewal process of rural communities.

The Growing Recognition. **Stahmer (1995) comments that "Increasing numbers of adults will need access to learning opportunities and continuing training in order to do their jobs, and to be ready to adapt to changes in their work" (p. 41). The recognition that a variety of delivery systems is needed to facilitate accessibility for students in terms of their needs, constraints, and place of resident can be witnessed at two of the major institutions in the province of**

Newfoundland and Labrador: The College Of The North Atlantic and Memorial University of Newfoundland.

The public college system is currently developing courses and programs through an adaptation of distance learning which the college has named Distributed Learning. The college offers courses from several different programs through distributed learning at a variety of campuses. Such courses include: Financial Accounting I, Computerized Accounting, Entrepreneurial Studies I, Introduction to the Internet, Information Brokerage, Teleworking Management, Mathematics and Marketing. The college has further developed a complete program of study through distance learning and has incorporated the components of distributed learning. This program is located at the Clarenville Campus and is called the Teleworking Program.

Memorial University of Newfoundland has also expanded course offerings through distance in a variety of programs and fields. In particular, the Faculty of Education Graduate Studies program is now offering eight to ten courses through the distance mode of learning. A further example is the social work degree program. Gosse (1997) comments "Students in Prince Edward Island can now graduate with a social work degree from Memorial University without ever having to leave their province" (p. 4). Further to this, both institutions have teamed together to provide satellite technology to students at different college campus locations in Newfoundland. This opportunity was provided through two-

way interactive video. For example, an instructor at Memorial interacted with students at college campuses in Carbonear and Clarenville. Both instructor and students were able to see and talk with one another at a distance (McNamara, 1996). This satellite technology, however, was an experimental process on the part of both institutions. These examples, experimental or not, show that there is support and growing recognition of accessibility for students through alternative delivery systems.

It is also clear from the literature that distance learning is being advocated by some but not supported by all. However, since the number of conventional students in traditional methods of delivery is changing, the subject of political debate is bound to be accessibility. The government will have to entertain distance learning as a major issue for discussion and possible implementation. These discussions must focus on higher education from a wider accessibility perspective. Harris (1987) best summarizes accessibility and distance learning in this context by stating:

Distance education seems to offer solutions to all of these problems separately, and, probably uniquely, to offer a single solution to each of them simultaneously: access can be widened, to adult students or to other desirable 'target groups', and at a most favourable set of costings. (p. 1)

The Attractions and Barriers. Some of the top attractions of distance learning for students as listed in Leach and Webb's study (as cited in Wallace, 1996) were they "prefer to study in their own time,' 'prefer to study at own pace' and 'prefer to study at home'" (p. 8). Grigsby's study and Crane's study (as cited in Wallace, 1996) concerning telecourse students also found that "For some students, the opportunity to learn at home or try a new learning method were important reasons why they became distance learners" (p. 8). All of these attractions are embodied in what is becoming known as the virtual classroom. The underlying idea is the virtual classroom concept will improve access to education by: (a) location, students can take courses from anywhere in the world at any institution, (b) flexible time; students can participate at any time of the day or night, (c) no travel; students do not have to waste time commuting, (d) overhead; no accommodation costs required, (e) shared work space; students can share information through technology, and (f) participation opportunity; students will have an equal opportunity to ask questions (Hiltz, 1994, p. 10-11).

The barriers to distance learning and open learning tend to lie within the institutions. Some of these barriers are: (a) traditional staff, (b) traditional students, (c) invisible students; a student who is never seen on campus produces negative connotations, (d) the never-ending school year, and (e) fiscal factors (Paul, 1993, p. 122-123). Other barriers to distance, especially to virtual classroom can be: (a) limited offerings, (b) equipment requirements, (c) delayed

feedback, (d) textual skills, and (e) technical skills (Hiltz, 1994, p. 11-12).

Cross's study (as cited in Verduin & Clark, 1991) also "found that the barriers most commonly cited by adult learners are cost and lack of time" (p. 28). Also, Minoli (1996) suggests that barriers to the growth of distance learning can range from union resistance and high capital cost to faculty concerns.

The Independence of Distance Learning. In general terms, distance learning, whether by correspondence, educational or instructional broadcast or computer, has the potential to reduce the barriers preventing many individuals from furthering their education. The advantage for the student is accessibility. Lever-Duffy and Lemke (1996) state "For those whose life circumstance makes it difficult or impossible to come to campus, distance education may be their only opportunity" (p. 2). Distance learning will offer the opportunity for people to study in the convenience of their own homes. It is beneficial for people who are employed and unable to attend daytime or evening classes. Accessibility to education for people in the workplace may be their key to advancement and promotion at work. As Philpot (1997) observes, "Distance learning can sometimes be the only means, and is frequently the best means, of acquiring a new post, or of gaining promotion" (p. 44).

Accessibility to education through distance learning provides universities

and public colleges with a broader range of student population than ever before. There is no age limit on enrolment of students by distance. The opportunity for universities and public colleges throughout Canada to capitalize on increasing student accessibility through distance learning can be unique. Community colleges can look to distance learning as: (a) an opportunity to expand educational programs, and (b) an opportunity to make education relevant to people's lives. On this point, Luskin (1981) notes that "The objective is to take education to the people, with classrooms to provide convenience of access in terms of educational opportunity, either in the home or at work or in learning centres" (p. 21). In this light, accessibility to education means opportunity for all members of society.

Emerging Technologies in Distance Learning

There is an abundance of literature on the use of emerging technologies in distance learning. These emerging technologies fall into three categories: networking, multimedia and mobility. This section will thus review some of the most relevant technologies in each of these categories. While this is by no means an exhaustive list of emerging technologies, this review does illustrate the new avenues that have opened the door for the field of distance learning.

Has already been demonstrated, distance learning is not a new concept. What is new is the specific technologies now being implemented and the

increased emphasis on distance learning. Distance learning may very well be an old idea but now has available new and revolutionary technologies for teaching and learning. Today's technologies provide alternative educational delivery systems for universities and community colleges to reach students at a distance. Hirschbuhl and Bishop (1996) state "Technology advances such as phone mail systems, the Internet, bulletin boards, teleconferencing systems, and interactive networked multimedia systems provide an effective means for facilitating faculty/student, student/content, and student/student communication, interaction, and involvement" (p. 202). These technological advances reflect the radical shifts occurring in our society today. "As increases in knowledge and education fuelled the industrial revolution" (Evans & King, 1991, p. 179), the quest for technology, information, accessibility, and ability to transmit is fuelling the communication and information age of today's society.

Networking. The category of networking includes such emerging technologies as the Internet and teleconferencing. Reinhardt (1996) states "Networking includes LANs, WANs, and on-line services (especially the Internet), as well as applications enabled by networks, such as audio conferencing and videoconferencing, e-mail, collaborative software, and instructional management" (p. 145). This section will explore some of these networking technologies as they apply to distance learning.

Barron and Orwig (1997) state "The growth of the Internet is perhaps the single greatest contribution to the communications explosion" (p. 200). There is an array of information available (some good, some not so good). The Internet provides the opportunity for individuals to link with one another anywhere in the world. The development of the World Wide Web along with the development of "web browsers," now makes access to the Internet resources easy. Some universities and community colleges have already begun to offer courses via the Web. Stevens (1998) comments "by linking schools electronically, using the Internet, satellite dishes and other contemporary technologies, teachers and learners can interact without leaving their own communities" (p. 8). Indeed, it might be argued that the Web represents one of the most significant advances to date in access to education. On the other hand, an argument can be made that this is a limiting technology because it depends on access to expensive equipment and knowledge in its use. Distance educators though, now have the power to create new and exciting learning environments for students of distance learning.

The second of these emerging networking technologies is teleconferencing. Teleconferencing is the ability to communicate in real time with one or more people at a distance. There are basically three types of teleconferencing: audio, audiographic and video.

Audio teleconferencing uses the technology of the standard telephone.

The limitation of audio teleconferencing is "the lack of visual interaction can limit learner engagement" (Barron & Orwig, 1997, p. 233). Despite this limitation, audio teleconferencing is still very successful and continues to grow. However, a question of merit is raised by McDonnell (as cited in Scriven, 1993), "'Will this low tech model of distance education carry us into the twenty-first century without major modifications?'" (p. 233). Distance educators may want to explore other options as technology increases.

The second type of teleconferencing is known as audiographic. Barron and Orwig (1997) state "Audiographic teleconferencing is one of the most rapidly evolving areas of distance education. Although fax machines can be used to supply basic graphics requirements, computers and related peripherals have become the primary vehicles of audiographic teleconferencing" (p. 241). If courses and lessons can benefit from still visuals audiographic teleconferencing would be the medium of choice for distance educators.

The third type of teleconferencing is videoconferencing. This emerging technology "combines full motion video with audio" (Barron & Orwig, 1997, p. 233). Videoconferencing at the moment "does not appear to be used to any significant extent in distance education" (Scriven, 1993, p. 74). However, some universities and community colleges are experimenting with courses through videoconferencing. Some of these institutions are in the United States, Canada, Sweden, France and Australia. Scriven (1993) reports "Despite impressive

technological advances the capital costs associated with the establishment of a videoconferencing network together with operating and transmission costs have not yet brought the technology into reach of most distance education providers" (p. 74-75). Although institutions are experimenting with videoconferencing the age old problem of cost continues to interfere with access to education.

Multi-Media. The category of multi-media includes such emerging technologies as analog and digital video, two-dimensional and 3-D animation, hyperlinks, audio, and digital ink. Reinhardt (1996) states "It also includes delivery media, such as CD-ROM discs and drives, graphics, display hardware ..., and sound cards" (p. 148). There is a constant growth of multi-media packages that are available for course delivery in the field of distance education. These applications range from educational and entertainment titles to large computational simulations (Reinhardt, 1996).

Distance educators and administrators, however, need to be cautious of both the effectiveness and the cost of such packages. Relevant questions need to be asked concerning the specific package intended for purchase. Further to this, the cost needs to be examined. Scriven (1993) states "The cost of hardware to support such packages will ensure that, for some time to come, their use will remain limited to the financially well off" (p. 75). This raises a very important point, namely that technologies which are widely promoted as

improving access can, in fact, be restrictive because of their dependence on high cost hardware and software.

Mobility. Mobility refers to the ability to access programs no matter where one is located. The category of mobility includes such emerging technologies as the virtual classroom and telelearning. "Mobility is, in a certain sense, yet another outcome of networking, but it also comes about as a result of miniaturization" (Reinhardt, 1996, p. 148). Universities and colleges have been experimenting with courses on a small scale through virtual classrooms and telelearning.

Networks allow mobile access for learners through "establishing dial-in service that permit anytime/anywhere access to course materials and fellow students" (Reinhardt, 1996, p. 148). Course offerings through the virtual classroom and telelearning concepts will give adult learners freedom of mobility. Reinhardt (1996) further states "Distance learning, held out for years as a prime example of the potential of educational technology, benefits enormously from the combination of networking and mobile access" (p. 148).

These new and emerging technologies provide distance education with new methods and alternatives for delivery. While "print media remain the backbone of distance education and often used in combination with other media" (Verduin & Clark, 1991, p. 86), these new and emerging technologies will alter

the field of distance learning in an unprecedented manner. For distance educators and educators in general, how we integrate technology into teaching will be of utmost importance. Our ability to take advantage of the power of emerging technologies will ultimately depend on our own educational creativity. The larger question, "Will the tides of education from traditional to distance change in the 21st century?", can only be answered with the progression of time.

Benefits of Technology

Niemi and Gooler (1987, p. 102-105) suggest five benefits of technology in education. These are: (a) access to learning opportunities; more people can take advantage of the access, they are not restricted to the formal classroom, (b) access to more and better information resources; these resources are greatly improved for learners, (c) variety of learning strategies; technology can address different learning styles and needs, (d) increased motivation to learn; technology can provide a fun and exciting experience, and (e) individualized and cooperative learning; today technology can provide higher levels of interactivity between students and students, teachers and students when carefully planned.

Further suggestions that emphasize the benefits of technology in education are: (a) instructional effectiveness, (b) active learning; students become more involved in the learning process, (c) critical thinking; some technologies improve thinking skills, (d) individualization; technology offers the

opportunity for students to progress at their own rate of learning, (e) motivation; technology can inspire students to learn, (f) flexibility for students with special needs; technology can offer students with special needs and learning disabilities a greater opportunity of access to learning (g) cooperative learning, (h) communication skills, (i) multisensory delivery; technology can allow students of different learning styles to assimilate knowledge at their own pace, and (j) multicultural education (Barron & Orwig, 1997, p. 4-6).

Limitations of Technology

The use of technology is not without limitations. The paradox of access and technology is that distance learning is designed to promote access but reliance on technology may restrict access. Niemi and Gooler (1987, p. 105-106) identify the following limitations: (a) access and equity; can technologies bridge the gap between those who can afford technology and those who cannot?, (b) quality of materials and programs, (c) development costs, (d) standardization and obsolescence; the standardization of hardware is difficult in technology and hardware bought today can be obsolete tomorrow, (e) human contact and interaction; will technology isolate learners?, and (f) training learners to use the technology; how do we prepare students to use new technologies?

There is no doubt that technological changes will continue to influence the world in which we live. As educators and citizens of society we must ensure that technological change does what we want it to do. Barron and Orwig (1997) provide a succinct statement on the place of technology in education, "Technology can also provide an excellent avenue for student motivation, exploration, and instruction in a multisensory, diverse world. Technology, however, is only a tool. The challenge rests with educators to effectively integrate it in appropriate places throughout the curriculum" (p. 9). Technology is the creation of human kind. As the world evolves we must control technological advances as we deem appropriate. Technology can be a means of advancement but we must still be the source and control of our own destiny.

Cost-Effectiveness: An Exploration

There is a vast array of literature on the cost-effectiveness of distance learning. This section will focus on a general overview of the cost-effectiveness of distance learning for universities and community colleges.

The cost-effectiveness of any distance learning system is affected by many variables. Rumble (1993) comments "The cost structures of distance and traditional education are so different that those setting up distance systems experience considerable difficulty in describing the operation and economies of their institutions to officials in government and funding agencies" (p. 95). The

objectives of both distance and traditional systems can be very different. For example, both systems may teach different subjects or the same subjects in different ways and the quality of students in both systems may be very different. It thus becomes imperative that universities and community colleges be quite clear on what their educational goals are for either system. Dunning, Kekerix and Zaborowski (1993) comment "Once programming goals have been established and the technology has been selected, an effective budget model can be formulated" (p. 122).

In planning for distance learning, institutions must consider the fixed and variable costs of the system intended when forming their budget models and educational objectives. In making such decisions universities and community colleges must consider, for example, student related costs. Rumble (1993) states:

In distance-education systems, student-related costs include the costs of materials supplied to students, the costs of distributing materials where these are sent to each student, the costs of paying tutors to mark students' assignments and examination scripts, and the costs of any face-to-face tuition. Obviously, the cost per student goes up if one gives students more rather than less material, while the cost per student of tuition, for example, will vary depending on the amount of tuition given and the student-tutor ratio. (p. 95-96)

There is no guarantee that distance learning will be cost-effective for any university or community college. With so many variables involved, there is only the possibility or the potential of distance learning to be cost-effective.

In forming budget models and educational objectives, research and development of courses must be of major concern. Institutions must decide which courses they are offering through distance learning. For example, a course in welding may very well include the cognitive and affective objectives. However, to offer the psychomotor objectives, practical hands-on experience would be required at some local campus or welding centre. Distance learning and regular classroom instruction vary, since the program objectives are likely the same, while the target audience differs. Other questions that institutions need to consider are: (a) Who is the target group they wish to reach?, (b) Are students willing to do courses by distance?, and (c) Are there enough students to warrant offering such courses? These and many other questions must be evaluated when educational institutions are determining the cost-effectiveness of distance learning for their school. Willis (1993) further points out, "Many studies fail to take into account continuing personnel costs and the financial implications of developing and maintaining the required technical infrastructure. While distance education may be cost-effective, it is never inexpensive" (p. 13-14). The cost-effective question is ultimately an individual institution decision based upon many variables.

Holmberg (1986) best summarizes the cost-effectiveness of distance learning for any educational institution when stating:

Distance education, as applied to large student bodies, is characterized

by very favourable cost-benefit relations provided that the distance-teaching element predominates. It is primarily the arrangements for face-to-face sessions, such as study centres, residential schools, and classes of various kinds, that modify or negate the validity of this statement ... It is true that use of sophisticated and costly media and technology also in some cases detract from favourable cost-benefit relations, but this does not change the overall picture of distance education as economical. (p. 203)

These different kinds of arrangements (face-to-face, study centres, and technologies) associated with distance learning must be considered in the type of courses being offered. Universities and community colleges setting up distance initiatives must not sell themselves short on the promise that distance learning can be cost-effective. Dennison (1986) comments "The fundamental issue is that community colleges which are designed to fulfil a limited mandate within broadly dispersed population centres are not constituted to embark upon the production and delivery of a wide scale of distance education activities" (p. 187). However, Bates (1989) states that, "The initial cost of producing a distance-education course is much higher than that of producing a conventional classroom course. Once the course is created, the costs of presenting it are much less, and in particular, the marginal cost of taking each extra student is usually low" (p. 139).

The prospect for distance learning becoming cost-effective depends upon the educational goals of the institution. Verduin and Clark (1991) state "The quality and extent of access to education achieved through distance education

depend greatly upon economic realities and educational priorities and missions” (p. 104). If distance learning is to be a top educational priority then the educational goals of the institution must reflect this reality. The ultimate question for institutions is, “Can distance learning provide the means to do more with less?” The answer to such a question can be found in well-defined mission statements, educational goals, budgets, organized program and course objectives along with the commitment of universities and community colleges toward distance learning. Commitment and time will be one way in which the exploration of distance learning can be determined as cost-effective for universities and community colleges.

Summary

The literature indicates that distance learning has been around for a long time but never had the appropriate tools to expand until recently. Advances in technology now present distance learning with the tools to provide greater access to education for students. The task for administrators of post-secondary institutions is to find ways to merge their current technology with new and advanced technologies. This endeavour leads to the question of the cost-effectiveness of distance learning for the institution.

Cost-effectiveness is one of the drawbacks of distance learning for institutions. The decision to implement distance courses is an individual

institution choice based upon many factors. Technology can provide access to education but it can also limit access due to cost. On the other hand, the literature reveals distance learning is an increasingly viable option for: (a) people who live in remote areas with limited access to traditional learning opportunities, (b) those who cannot or prefer not to leave their homes to continue their learning, and (c) individuals who are part of the work force and cannot attend regular class. College and university administrators must find the appropriate balance of access, technology, and cost-effectiveness that is unique to their institution when deciding to implement distance learning courses.

At the turn of the century, colleges and universities recognize the growing need for greater access to education. Institutions must make critical decisions concerning the accessibility of education for students. In Newfoundland and Labrador, this is evident since the collapse of the northern cod stocks and the subsequent decline of rural communities. The need to access education has become that much greater. The independence of distance learning can offer at least the opportunity of access to an education for members of society. The challenge of distance learning is to provide cost-effective access to education for the many individuals who are not able to take part in traditional institution-based programs. Administrators must therefore review institution mandates if accessibility to education is to be a desirable goal through distance learning.

CHAPTER 3

METHODOLOGY

This study followed a three-stage approach in attempting to answer the research question. In the first stage, structured interviews were conducted with key informants familiar with distance learning programs in the college system. The informants included college administrators, instructors, and an official with the Department of Education. The second stage involved more structured interviews with a sample of students who had taken part in distance learning courses at the college. Finally, a modified Delphi type process was used to determine if any consensus exists on the future of distance learning among campus administrators.

Key-Informant Interviews

Key-informants are persons who possess some special knowledge about the issue under investigation and are willing to share that information with the researcher (Lecompte & Preissle, 1993). Key-informants are an important source of data in research of this type, both because of their knowledge and because they are in a position of influence and direction in the system. The key-informant interview process served two purposes. First, the information obtained became a source of data to be triangulated with other sources. Secondly, this provided an opportunity for college administrators, instructors and an official

from the Department of Education to give their opinions, perceptions and feelings about distance education outside the official record of the college. Each key-informant was contacted by telephone to ask for permission for an interview (Appendix A). Also, a general set of interview questions was used as a guide for each respondent (Appendix B).

College administrators and the Department of Education official were selected for two reasons. First, these are the persons in the college system and the provincial government who are knowledgeable about distance learning. Second, they are also the people likely to be in the know about future trends and concepts for the province. They are the senior managers and policy advisors of the college system and government. College instructors were selected for two different reasons. First, these persons are familiar with one of the several distance learning courses taught at the college. Second, these are the persons who are directly involved with distance learning at the grass roots level of the college. Their teaching experiences and insights were expected to give a clear picture of the problems associated with distance learning. Of the 10 key informants, three were senior college administrators, six were college instructors and last was the Assistant Deputy Minister responsible for the college system with the Department of Education.

Interviews were scheduled for a time period not to exceed one hour. For those respondents who could not be interviewed due to schedule problems or

long distance of travel for the researcher or the respondent, the interview took place by telephone. The process for the interview was semi-structured and open-ended following the advice of Lecompte and Preissle (1993).

Analysis of interview data requires that a researcher search for common themes to be grouped to allow for the emergence of any patterns in the data. According to Lecompte and Preissle (1993) "Once a researcher has established the categories within which the data are organized and has sorted all bits of data into relevant categories, the portrayal of a complex whole phenomenon begins to emerge" (p. 237). The patterns that emerged helped identify the perception that administrators, instructors, and the Department of Education official had towards distance learning as a medium for delivery of college programs.

Advantages and Disadvantages of Interviewing

The choice of interview style used in this study was face-to-face or telephone depending on the arrangement between the researcher and the respondent. This section will examine the advantage(s) and disadvantage(s) of face-to-face interviews and telephone interview surveys.

Lecompte and Preissle (1993) suggest an advantage of face-to-face interviewing is that "... researchers guide the revelation of information: Through elicitation and personal interaction, the investigator is better able to obtain data addressing the questions asked in the study" (p. 165-166).

One of the major disadvantages of face-to-face interviewing is "high cost in money and time" (Simon & Burstein, 1985, p. 171). Lecompte and Preissle (1993) further state another disadvantage, "interviews can be more reactive or obtrusive, and respondents, deliberately or unconsciously, may supply false or misleading data" (p. 166).

One of the major advantages of telephone interview surveying is that "telephone costs are relatively constant, regardless of the geographic distribution of respondents" (Jaeger, 1988, p. 313). This thus reduces the travelling costs involved in face-to-face interviewing. Another advantage as described by Jaeger (1988) is, "telephone interviews allow questions to be asked one at a time, in order prescribed by the survey researcher" (p. 313).

The main disadvantages of telephone interview surveying are: "First, the interview must usually be short; unless you prearrange the interview, it is seldom practical to ask more than a handful of questions. Second, you cannot observe the subject visually; in personal interviews observation can reduce lying" (Simon & Burstein, 1985, p. 171).

Telephone companies have recently introduced unlimited long-distance calling plans throughout North America. This substantially improves the cost-effectiveness of telephone interview surveying. This method will therefore continue to gain momentum as a popular choice for gathering primary data.

Student Survey

Telephone interviewing was the method of choice for the student survey (Appendix F) because of the large sample size. In this situation, the telephone survey is much more efficient than face-to-face interviews and more conducive to high response rate than the alternative of using a mail survey. The telephone survey technique allowed the researcher to gather primary data through asking questions of a representative sample.

A request to the College of The North Atlantic for a list of all students enrolled in distance learning courses yielded a population of 955, for the 1995-96 academic year. This was the latest information available at the time of the request. As far as can be determined this list included all those enrolled in distance learning in five public colleges in existence at that time. This population was broken down into 463 students enrolled in adult basic education distance learning courses and 492 students enrolled in other distance courses such as administrative writing, medical terminology, medical laboratory, security guard, and the telework program. Students enrolled in first year university courses through campuses of the college system were excluded from the distance learning population.

The starting point for selecting the sample was a decision to use a margin of error of plus or minus 5%, at the 95% confidence interval. Using the standard random sampling formula (Appendix G), yielded a sample size of 282 students.

The sample was selected from the population list using a random start constant interval technique. Resource limitations permitted only 228 telephone interviews to be completed for a response rate of approximately, 81%. The survey was conducted from May 1 to November 30, 1998. It is recognized that a substantial amount of time had elapsed between enrolment and the time of the survey. This was a consequence of the pace at which it was possible to conduct the study.

Both descriptive and inferential data analysis were conducted. The results of the statistical analysis allowed the researcher to make inferences about the population based on the sample. For this study, this was important since the researcher wanted to generalize to the larger population about the perspectives of students. These results were a clear signal from students that college decision-makers must consider when deciding the medium for delivery of future college programs.

Delphi Technique

The Delphi Technique was developed at the Rand corporation in the early 1950s for military and technological forecasting (Gordon & Risk, 1996). This technique allowed the researcher to deal with an area of uncertainty where there are no correct answers. A consensus of opinion from a panel of experts about the subject is useful where knowledge in the area is deficient. Kaynak (1985) comments that "The intention of this technique is simply to obtain intuitive

judgements about the future as systematically as possible from persons who are selected as experts in the area or subject to be predicted" (p. 39). Since distance learning is an area of uncertainty in the college system at the present time, the perceptions, opinions, and ideas generated from a panel of experts would certainly lend itself to helping the college in the decision-making process of distance learning as a medium for the delivery of college programming.

Gordon and Risk (1996) state that:

Experts are selected on the basis of a general knowledge about the issue, not necessarily any specific technical or mechanical knowledge. Studies have shown that respondents with a good general overview are able to produce as accurate projections of a subjective nature as technical specialist. (p. 2)

Modified Delphi Type Process

A modified Delphi type process was used in this study to create a more structured questionnaire than usually found in Delphi studies. This process proceeded as follows: (a) a panel of experts filled out a structured questionnaire developed by the researcher, (b) based on the results, a second questionnaire was developed and sent to the panel along with the results of the first questionnaire, (c) the researcher used the two questionnaires to decide if a forecast could be made, (d) if there was considerable disparity between the results of the first two structured questionnaires another round was used. This continued until a reasonable forecast could be made about the future, and (e) a

final summary report was prepared and sent to each panelist. This modified Delphi type process allowed for anonymity and controlled feedback. It replaces the confrontation mode of group meetings and the fear of saying the 'wrong' statement at the 'wrong' time. In face-to face group meetings the opinions of the authority types are sometimes dominate (but not necessarily the most correct) over those who are not so confident in their response (Gordon & Risk, 1996). Kaynak (1985) states that "the intention of this process of repeating rounds is to promote convergence of the experts' predictions and it continues until the researcher is satisfied that further convergence of opinion will not be obtained" (p. 40).

Gordon and Risk (1996) suggest that "the more experts, the better, subject to a practical maximum of perhaps 20" (p. 3). The Delphi panel for this study, consisted of 14 members, two from each of the seven districts of the college system. These members are in a position to shape the future of delivery methodology for the college. They were selected based on their general knowledge of, experience, and involvement with distance learning. It is important to note that the panel members were not technical experts in the field, but were individuals in a position to influence policy and who could be expected to give some thought to future directions in distance learning.

All members of the Delphi panel were contacted by telephone and were also sent letters of explanation concerning the modified Delphi type process

(Appendix C). Included with the initial letter was the first round questionnaire (Appendix D). The second round questionnaire (Appendix E) was completed by telephone once the first round questionnaire had been collected and analyzed.

The data collection for the modified Delphi type process involved mailing two structured questionnaires. The first questionnaire endeavoured to seek a convergence of opinion among panel members. The second questionnaire continued to pursue convergence of opinion among panel members on the questions in the first round that did not show convergence. The data analysis was based upon two assumptions, summarized by Kaynak (1985), "First, with repeated measurement the range of responses will decrease with convergence toward the mid range of the distribution. Second, the total group's response, or median, will successively move toward the 'correct' or 'true' or the 'most likely' answer" (p. 38). The researcher analyzed the data looking for convergence of opinion as each questionnaire round was received from the expert panel members.

Advantages and Disadvantages of Modified Delphi Type Process

Some of the same advantages and disadvantages of the Delphi Technique as listed by Hammock (1997) can be applied to the modified Delphi type process used in this study. These are:

- Advantages: (a) allows participants to remain anonymous, (b)

inexpensive, (c) free of social pressure, personality influence, and individual dominance, (d) conducive to independent thinking and gradual formulation, and (e) a well-selected respondent panel - a mix of local officials, knowledgeable individuals, citizens of the community, regional officials, academic social scientists, etc - can provide a broad analytical perspective on local problems and concerns.

- Disadvantages: (a) judgements are those of a selected group of people and may not be representative, (b) more time-consuming than the nominal group process, (c) should not be viewed as a total solution, (d) requires skill in written communication, and (e) requires adequate time and participant commitment (about 30 to 45 days to complete the entire process). (p. 1)

Informed Consent

Informed consent was obtained from all participants where required. The consent form (Appendix I) described the nature and purpose of the study, and consent to use any audio-recording of the interview session. Participants were guaranteed anonymity. All respondents were given the opportunity to review their comments to ensure accuracy.

Summary

Three methods were used in this study: interviews, a student survey, and a Delphi panel. Glesne and Peshkin (1992) state "the use of multiple-data-collection methods contributes to the trustworthiness of the data. This practice is commonly called 'triangulation' and may also involve the incorporation of multiple data sources, investigators, and theoretical perspectives ..." (p. 24).

The use of these three different methods provided for multiple perspectives from the different groups of important players involved with distance learning in the public college system, specifically, administrators, instructors, and students.

Each of the methods were used to collect data on distance learning perspectives on such issues in the college as accessibility, technology, cost-effectiveness, and the direction of distance leaning. The interviews gathered data from administrators and instructors on 31 questions. The interviews were with key informant persons who have some special knowledge about distance learning in the province. The student survey gathered data from 228 students on 21 questions. The student survey gave students the opportunity to express their opinions, concerns, and recommendations about distance learning as a medium for delivery of college courses in the province. The Delphi panel questionnaires gathered data from 14 campus administrators on 22 questions. The Delphi panel gave campus administrators the chance to offer their perspective on the future of distance learning at their campus and the college in general.

CHAPTER 4

RESULTS

Interviews - Administrators and Instructors

Questions for administrator and instructor interviews were divided into two parts: the general research question and the specific research questions. Responses for all interview questions were grouped according to common themes. Appendix B gives the complete interview questionnaire for administrators and instructors.

Interview Results - General Research Question. This study asked the following general research question.

What is the future direction of distance learning in the public college system of Newfoundland and Labrador, as perceived by college administrators, instructors, and students?

Administrators agreed that distance learning has some future at the college but the college must focus on developing the future one step at a time. The common response of instructors was there is a future for distance learning in the college. However, none of the respondents were really certain on how great the future is or to what extent. One respondent summarized the answer to the question as follows:

I think distance learning is dependent upon the drivers. The driving

forces in Newfoundland are the social economic goals at both the college and Department of Education. Government is saying we have to get everyone to think "life long learning." We have to develop a learning culture and provide as much access and equality learning as we can. One way is by distance learning. Newfoundland is a broad geographical region and we have to ensure we have no barriers for the learner. So the future for distance learning is already set.

Administrators further agreed that the pace of acceptance of distance learning among administrators is slow; however, this slow acceptance may change in the future. Administrators also appeared to believe that there is an uncertainty among instructors about distance learning and that the level of acceptance of distance among students was, as one respondent commented: "They love it. I know even now who are on the campus and taking at least two courses through distance because they can't get these courses on campus or fit them into their timetable."

Administrators also agreed that distance should be a priority for the college. One respondent commented: "distance should be part of the trend or direction of the college, not a band wagon scenario." The college should have structure and substance to distance not simply to implement whatever trend is in style at this point in time.

Interview Results - Specific Research Questions. The following specific research questions were asked in this study.

What improvements can be brought about in the programming initiatives of the public college by setting up distance learning?

Administrators were generally of the view that programming changes will occur, for example, in curriculum and resource materials. However, no firm views emerged on the precise nature of these changes. Instructors showed a diversity of opinion concerning programming changes; some felt the design of programming will change while others felt only certain courses should be taught by distance.

What problems, if any, will distance learning create for the public college system?

The administrators were not quite sure of what problems might exist since distance learning is still in the early stages of development. The instructors felt that more research, time, and planning would be required to determine the problems.

Will distance learning be cost-effective for the public college system?

The common response of administrators about the cost-effectiveness of distance learning for the college was uncertainty. Administrators were of this view because at this point in time there are no accurate figures available on the cost-effectiveness of distance learning in the college system. However, the point was expressed that if you are going to have a quality program it will be costly either way. Instructors were of diverse opinion concerning the cost-

effectiveness of distance, with few common elements. Some thought that cost-savings could be made in classroom space on campus while others felt the high cost of instruction and delivery would be a deterrent for offering distance courses.

Will students avail of distance learning programs established at the campuses of the public college system?

Administrators were of the view that students will avail of distance courses, but this will not be a rapid expansion. The common response of instructors was that students will avail of distance courses. One respondent commented: "It gives students flexibility of time, place, when they want to do their studies. It gives them flexibility to do it independently."

In addition to the general and specific research questions of this study the following associated research questions also revealed pertinent information.

The administrator and instructor interview question concerning the general involvement and experience of senior administrators and instructors with distance learning elicited different responses. The response of administrators was identifying resources, planning student supports, determining programming needs, and creating policy, as expected for this group. The response of instructors was that distance requires a high degree of planning, organizing, and

evaluating. One respondent commented: "What I found out very quickly is that distance learning exposes every instructional and design flaw of a course".

The question of the major strengths and weaknesses of distance for administrators and instructors evoked two different views. The common responses of administrators concerning the strengths were: (a) distance learning allows students who are working full-time or part-time to participate on their own time schedule, and (b) learn at their own pace. The responses of administrators about the weakness of distance learning is summarized by the following view.

Graduate students adapt quite well to distance learning. Undergraduate students have some difficulties and frustrations. I wonder for people who do not have the basic skills to do ABE by distance learning. That sends a signal that you need to be attentive. Where you are on the education continuum may have something to do with success by distance learning, there is no research in that area. But, I think this makes common sense. The college may be in this situation.

Instructors identified the strengths of distance as: flexibility, access, convenience, the provision for individualized pace and home-based learning.

The common response of instructors about the weakness of distance was student supports need to be in place, students sometimes have the feeling of isolation, technological disabilities, lack of instruction, and some distance courses are not well developed.

The question of the comparison of distance to traditional learning elicited a similar response but yet different from the response of both administrators and

instructors. The collective view of administrators is summarized by one respondent in stating: "In an overall kind of way, it is not that one is any better than the other, it is just that one suits the learning style of modern day students." Instructors felt students must be well-organized learners or self-learners to do distance courses. One respondent's comment was: "People need to be self-motivated and independent learners. If those characteristics or qualities are not evident, the chance of success is very limited."

Administrators and instructors were asked whether the college should include distance courses in their programming. Both administrators and instructors were of the opinion that the college should expand to include distance learning courses for the purpose of accessibility for students. Instructors indicated the main reason to expand is due to the scattered nature of the population in Newfoundland and Labrador. This expansion would allow for greater accessibility through the scattered nature of the campuses.

The question of accessibility of courses for students was examined through the administrator interviews. The administrators view was that students may not be fully aware of the accessibility of courses. As one respondent commented: "We are building the boxes and taking the steps in a direction that no one is certain where it will end."

Administrators and instructors were asked about the quality of instruction through distance. The response of administrators was the quality of instruction

should be the same, no matter if it is distance or classroom based learning.

One respondent commented: "If there is any difference in quality then it is only a difference because the instructor makes the difference." Four of the six instructors felt that the quality of instruction will be sound. One respondent summed up the feelings of instructors when stating: "quality will always be dependent upon philosophy of the person involved. It's not the mode, but what the college or individual has adopted that will determine what teaching or learning is all about. Focus on the learning process rather than medium of delivery."

The question of the possibility of job losses due to distance was explored. Administrators and instructors were of two diverse opinions. Administrators believed that some instructors would see distance as a threat to their jobs. Instructors, however, were unanimous in believing that there is no threat to jobs from distance. Distance is still an instructional function. One respondent commented: "assuming that the intent is to offer quality training, the nature of the work will inevitably change, but the volume of work will probably increase."

Administrators were asked about the types of technology being used at the college for distance. Such technologies being used are the world wide web, computers (e-mail), voice modems, video conferencing.

Instructors were asked to examine the method of preference for instructing distance courses. Results indicated that there was no common

preference. Some comments were: "constant communication is needed, whatever method," "feedback is important," "methods that encourage a social form," "web-based methods," "print-based for Newfoundland because not every home has Internet/computer access - a well developed study guide can cut down on the phone calls."

Student Survey - Descriptive Statistics

Table 1 shows demographic data of the student sample. Question 19 indicates the majority of student respondents were of the ages 30-39. This implies that those taking college distance courses tend to be people from the low to middle age range. Question 20, shows the breakdown of student respondents with respect to work force. Question 21, indicates the highest educational levels of respondents. Approximately, 38% of high school students are dropping out and probably enrolling in Adult Basic Education courses to complete their high school equivalency. The data also shows that 62% of student respondents did attend a university or college.

Table 2 gives the responses to the question concerning how students heard about distance learning. The data clearly indicates that person-to-person has been the dominant source of college advertising.

Table 1

Demographic data

Question	Category	Percentage	
19. Age	16 to 29	0.9	
	20 to 24	18.4	
	Total responses = 228	25 to 29	20.6
		30 to 39	43.4
		40 to 49	13.6
		50 +	3.1
20. Work-status	Full-time	46	
	Part-time	25	
	Total responses = 228	Unemployed	13.6
		Seasonal	5.3
21. Educational level	Compl. High School	37.7	
	Ever attend University	29.8	
	Total responses = 228	Compl. College	27.2
		Compl. University	5.3

Note: compl. = completed.

Table 2**How students first heard about distance learning**

Question	Response	Percentage	
1. How did you hear that the college was offering distance learning courses?	Person to person	46.5	
	Employer	15.4	
	Newspaper	8.3	
	College Brochure	7	
	Total responses = 228	Cable	6.6
		HRDC	6.6
		Other	5.2
	Radio	4.4	

Table 3 reveals that the majority of respondents were completing college courses through correspondence, although other forms were available. This suggests college courses offered through distance are mostly of the print-base nature. Some 30% of the respondents were using the telephone method and at least 22% of respondents were meeting face-to-face with their instructor. This certainly questions the premise of the courses offered being truly distance courses as per this studies definition of distance learning.

Table 4 gives the responses to questions having to do with reasons, advantages and disadvantages for taking distance learning courses. The respondents clearly indicate they were doing courses by distance for upgrading purposes or to satisfy employer requirements. Students were either upgrading their Mathematics, Science, or English marks to enter post-secondary or completing grade 12 to enter post-secondary. Responses to question 3 also indicate that the main advantages of distance learning were learning at home and no traveling. Respondents were quite vocal concerning the major disadvantages of distance. There is a scattering of disadvantages, however, the major concern is that instructors were not available for help. Either they were not in their office, at the campus, or available.

Table 5 focuses on problems of distance learning in the college system and student opinions on cost. Respondents were divided on question 5 concerning the possibility that distance learning is better or worse than the

Table 3**Methods used to communicate between instructor and student**

Question	Response	Percentage
7. What methods were used to communicate in courses between instructor and student? (Multiple Responses)	Correspondence	33.7
	Telephone	30.2
	Face-to-face	21.8
	E-mail	5.1
	Fax	4.4
	Teleconferencing	2.5
	Videotapes	2.3
	Telewriting	0
Total responses = 569	Other	0

Table 4

Main reason, advantage and disadvantage for doing a distance learning course

Question	Response	Percentage
2. What was your main reason for doing a course at the college? Total responses = 228	Upgrading	42.1
	Work related	41.7
	Learn at own pace	8.3
	Interested in course	3.1
	Other	3.1
	Computer training	1.7
3. What do you consider to be the main advantages of distance learning for you? (Multiple responses) Total responses = 440	Learning at home	42.7
	No traveling	23.4
	Learning at own pace	21.6
	Less cost	10.7
	Other	1.6
4. What do you consider to be the main disadvantages of distance learning for you? (Multiple responses) Total responses = 228	Instructor not available	45.4
	No disadvantage	17.9
	Instructional time	13.3
	No 1 on 1 instruction	6.6
	Other	5.1

Table 5

Compared to an on-campus course what do students think about: distance learning, cost of course, difficulty of course, learning as much from distance, adequacy of materials, evaluation, and content covered in distance course

Question	Response	Percentage
5. Do you feel that distance is better or worse than the traditional approach? (Multiple responses) If so, explain why?	Better	47
	Worse	16.3
	Both	15.5
	Other	7.8
	More-one-on-one	3.9
	Learned more in class	3.9
	No instructor commun.	3.5
Total responses = 283	More Instr. time	2.1
6. Cost of distance learning	less costly	89.5
	about the same	6.6
	more costly	3.9
Total responses = 228		
8. How difficult was distance learning as compared to on-campus courses?	Not very difficult	54.4
	Slightly difficult	32
	Somewhat difficult	11.4
	Very difficult	2.2
Total responses = 228		

(table continues)

Question	Responses	Percentage
9. Do you think you have learned as much from a distance course as an on-campus course? If so, why not? (Multiple responses) Total responses = 267	Yes	61
	No	21
	Undecided	3.4
	No one-on-one instr.	4.9
	Communication prob.	4.1
	Learned more in class	2.2
	No instructional time	1.9
	Other	1.5
10. Do you think the materials in the course was adequate? Total responses = 228	Somewhat adequate	51.3
	Very inadequate	40.8
	Somewhat inadequate	4.8
	Very adequate	3.1
11. Do you think the assessment in the course was adequate? If so, why not? (Multiple responses) Total responses = 232	Yes	92.7
	No	5.6
	Course organization	1.7

(table continues)

Question	Responses	Percentage
12. Do you think you covered as much content in a distance course as in an on-campus course?	Yes	68.9
	No	20.6
	Undecided	10.5
Total responses = 228		

Note: instr. = instruction; prob. = problems; comm. = communication.

traditional mode of learning. The interesting statistic is 15.5% of the respondents believe that distance learning can be both better and worse, simultaneously. This shows some respondents are not overly convinced of this approach to learning and whether this is a problem for the college remains to be seen. The responses to question 6, indicate that distance learning is less costly for distance students than it is for students who attend regular classes. An overwhelming 89% of students indicate that distance learning is less costly for them. Whether it is cost-effective for the college requires research, planning and time. The responses to questions 8, 9, 10 and 12, suggest there are some problems in course design that college course designers need to focus on when examining courses offered through distance. Question 11, however, shows 93% of respondents were satisfied with the course evaluation.

Table 6 brings into focus responses to the questions of students availing of distance learning programs at the college, methods preferred, the pursuit of distance learning as a medium of delivery for college courses and the future of distance in the college as perceived by students. Responses to question 13, indicate that 89% of respondents would do another course from the public college. Responses to question 14, also indicate the method of choice would be correspondence. Computers, e-mail, and teleconferencing were preferred by smaller proportions. This indicates correspondence still seems to be the method preferred, however, computer technology methods are increasing within the

Table 6

Student response to enrolling in another course at the college, by what method, and the college pursuit of distance as a means of delivery of courses

Question	Responses	Percentage
13. Would you consider doing another course from the college? If no, why not? (Multiple responses) Total responses = 238	Yes	88.7
	No	7.1
	Organization of course	4.2
14. What methods would you prefer if you did another course through distance learning? (Multiple responses) Total responses = 396	Correspondence	37.1
	Other: Computers	23.7
	E-mail	15.2
	Teleconferencing	11.9
	Fax	9.3
	Telewriting	2.8

(table continues)

Question	Responses	Percentage
15. Should the college pursue distance learning as a means to delivery of courses?	Yes	95.3
	No	3
	If not, why not?	Certain sections
	Total responses = 228	taught in classroom
16. What future direction would you like the college system to pursue in distance learning?	Some courses	57.5
	Most courses	29.4
	A few courses	11.8
	No courses	1.3
	Total responses = 228	

general public domain. Responses to question 15 show overwhelming student support for the college to continue distance learning as a means of delivery for college courses. Student respondents further specified in question 16 their views on the future direction of the public college with respect to the number of courses to be offered by distance. Some 57.5% of the student respondents suggested that only some courses should be offered through distance by the college.

Table 7 gives the responses of students to the questions of change and improvements that the college can implement. At least 40% of the respondents were quite specific about the changes and improvements needed in distance learning courses offered through the college. Increased communication with instructors was seen by students as a major factor in achieving significant change and improvement.

Table 7

Change and improvements recommended by students for distance courses

Question	Responses	Percentage
17. What would you change about the distance learning course you completed?	No change	59.2
	More comm. with instr.	20.6
	More 1on 1 instruc.	4.4
	More Instructional time	3.5
	Sections in classroom	2.6
	Organize course	2.2
Total responses = 228		
18. What can be improved about distance learning courses?	No change	62.7
	More comm. from instr.	18
	Hotline for help	5.7
	More instructional time	4.8
Total responses = 228		

Note: comm. = communication; instr. = instructor; instruc. = instruction.

Student Survey Cross-Tabulations by Work-Status. Tables 8 through 13 summarize the questions of the student survey that show significant relationships by work-status.

Table 8 gives the relationship between work-status and the main reason for doing a course by distance. This result indicates that full-time and part-time workers in particular are taking advantage of college courses by distance. The main reasons given by the majority of respondents were upgrading purposes, work related reasons and the opportunity to learn at one's own pace.

Table 9 indicates the main advantage for completing a course by distance and the relationship with work-status. The full-time, part-time, seasonal and unemployed workers are indicating that learning at home, no traveling and learning at your own pace are of particular importance. The cost factor was secondary.

Table 10 shows the relationship between the main disadvantage of completing a course by distance and work-status. The common complaint of the full-time, part-time, seasonal and unemployed workers was they usually require help during evening hours and generally instructors were not available at that time.

Table 11 explores the relationship between content covered and work-status. This is of major concern to all categories of the work force. This suggests college designers must review the content of courses offered through distance.

Table 8

Main reason for doing a distance course by work-status

Response	Work-Status				Total
	Full-time	Part-time	Seasonal	Unemployed	
Upgrading	28	24	18	24	96
Work related	56	19	11	9	95
Learn own pace	12	2	3	2	19
Interested/course	3	3	1	1	7
Computer training	2	2	1	0	4
Other	4	2	1	0	7
Total	105	52	35	36	228

$\chi^2 = 26.9, p < .05$

Table 9

Main advantage of distance learning by work-status

Response	Work-Status				Total
	Full-time	Part-time	Seasonal	Unemployed	
Learning at home	90	45	28	25	188
Less cost	10	15	10	12	47
No traveling	50	22	15	16	103
Learn own pace	30	30	20	15	95
Other	1	3	1	2	7
Total	181	115	74	70	440

$\chi^2 = 21.89, p < .05$

Table 10

Main disadvantage of distance learning by work-status

Response	Work-Status				Total
	Full-time	Part-time	Seasonal	Unemployed	
Limited instr. time	10	8	5	3	26
Instructor unavail.	54	13	11	11	89
Not receiving texts	2	4	0	0	6
Not oriented prog.	3	1	0	0	4
More 1 on 1 inst.	4	4	3	2	13
No main disadv.	14	5	7	9	35
Other	5	8	7	3	23
Total	92	43	33	28	196

$\chi^2 = 31.9, p < .05$

Note: Instr. = instructor; inst. = instruction; unavail. = unavailable; prog. = program; disadv. = disadvantage.

Table 11

Do students think they covered as much content in a distance learning course as an on-campus course by work-status?

Response	Work-Status				Total
	Full-time	Part-time	Seasonal	Unemployed	
Yes	77	39	22	19	157
No	20	10	10	7	47
Undecided	8	3	3	10	24
Total	105	52	35	36	228

$\chi^2 = 15.6, p < .05$

Table 12 shows the relationship between recommended course changes and work-status. All categories of the work force indicate they want more communication with the instructor either through face-to-face meetings, telephone, e-mail, or fax. The nature of this change though, varies with work status. The majority of the work force, however, were not sure of the type of change they would recommend to improve distance courses.

Table 13 gives the course improvements in distance that students require in relation to work-status. More opportunity for communication with instructors was a major concern of all categories; full-time workers indicate a significantly greater concern with this issue. However, the majority of the workforce were not sure of the improvement they would make to a distance course. These results echo the same results as Table 12.

The instructor communication issue suggests college administrators and course designers must review internal communications of distance learning courses at college campuses if distance learning is to be effective.

Table 12

Changes recommended by students for distance learning course by work-status

Response	Work-Status				Total
	Full-time	Part-time	Seasonal	Unemployed	
More instr. comm.	26	11	7	3	47
More 1 on 1 inst.	7	2	0	1	10
More instr. time	4	1	1	2	8
Organize course	2	2	0	1	5
Certain sections taught in class	5	1	0	0	6
No change	61	35	27	12	135
Other	0	0	0	17	17
Total	105	52	35	36	228

$\chi^2 = 109.3, p < .05$

Note: Instr. = instructor; inst. = instruction; comm. = communication.

Table 13

Course improvements recommended by students for distance courses by work-status

Response	Work-Status				Total
	Full-time	Part-time	Seasonal	Unemployed	
More instr. comm.	24	9	4	4	41
Hotline for help	12	1	0	0	13
More Instr. time	9	1	0	0	11
No change	49	38	23	29	143
Other	11	3	4	2	20
Total	105	52	35	36	228

$\chi^2 = 30.3, p < .05$

Note: Instr. = instructor; comm. = communication.

Student Survey Cross-Tabulations by Age. Tables 14 through 20 summarize the questions of the student survey that show significant relationships by age. The age categories were reorganized into four groups due to low numbers received in some age categories on the student survey.

Table 14 shows the relationship between age and the main reason for doing a course by distance. All age groups indicate the main reason for completing a course by distance was upgrading purposes or because the course was work related. In particular, these reasons were more concentrated in the age group of 30-39. This suggests respondents are completing courses by distance because they are part of the work force and cannot attend classes on a regular basis.

Table 15 explores the relationship between students learning as much from a distance course as compared to an on-campus course by age. Both younger and middle age students agree they learned as much from the distance course as compared to completing an on-campus course. However, the response of the middle age group of 30-39 was twice as strong as the younger age groups.

Table 16 explores the relationship between the evaluation of a distance course by age. All age categories agree that the evaluation of distance courses was quite satisfactory. In particular, all the respondents of the age group 25-29 agree the evaluation was quite sufficient. This suggests course designers at the

Table 14

Main reason for doing a distance course by age

Response	Age				Total
	16 - 24	25 - 29	30 - 39	40 +	
Upgrading	25	17	42	12	96
Work related	15	19	39	22	95
Learn at own pace	0	3	12	4	19
Interested/course	0	3	4	0	7
Computer training	1	1	2	0	4
Other	2	5	0	0	7
Total	44	47	99	38	228

$\chi^2 = 31.9, p < .05$

Table 15

Do students think they learned as much from a distance learning course as an on-campus course by age?

Response	Age				Total
	16 - 24	25 - 29	30 - 39	40 +	
Yes	33	41	76	13	163
No	10	6	18	22	56
Undecided	1	0	5	3	9
Total	44	47	99	38	228

$\chi^2 = 35.12, p < .05$

Table 16

Do students think the course evaluation was adequate by age?

Response	Age				Total
	16 - 24	25 - 29	30 - 39	40 +	
Yes	38	47	96	34	215
No	6	0	3	4	13
Total	44	47	99	38	228

$\chi^2 = 10.9, p < .05$

college should continue to provide the current evaluation schemes for distance learning courses.

Table 17 reveals the relationship between the course content covered by age. The younger age groups of 16-24 and 25-29 agree there was about the same course content covered as in a regular classroom course. However, the age group of 30-39 was twice as confident as the younger age groups on this question. Course designers must be aware of the different age groups when designing course content for distance courses.

Table 18 shows the relationship between method preferred by age. The method preferred by respondents was correspondence, however, some respondents did prefer e-mail, fax, teleconferencing and telewriter. The middle age group of 30-39 shows support for a variety of methods. Course designers should be aware of the methods preferred by different age groups when planning distance learning courses.

Table 19 gives the relationship between recommended course changes by age. The most prevalent course change that all age categories indicate was more contact with the instructor. In particular, this was strongly evident by the age group of 30-39. However, all age categories indicate they were unsure of what other changes to make at this time.

Table 17

Do students think they covered as much content in a distance course as compared to an on-campus course by age?

Response	Age				Total
	16 - 24	25 - 29	30 - 39	40 +	
Yes	28	38	75	16	157
No	11	5	14	17	47
Undecided	5	4	10	5	24
Total	44	47	99	38	228

$\chi^2 = 21.9, p < .05$

Table 18

Method of distance instruction students prefer by age

Response	Age				Total
	16 - 24	25 - 29	30 - 39	40 +	
Correspondence	34	30	59	24	147
E-mail	7	10	30	13	60
Fax	4	5	20	8	37
Teleconferencing	8	5	25	9	47
Telewriting	0	1	7	3	11
Other: Computers	23	30	17	24	94
Total	76	81	158	81	396

$\chi^2 = 39.2, p < .05$

Table 19

Changes recommended by students for distance learning course by age

Response	Age				Total
	16 - 24	25 - 29	30 - 39	40 +	
More instr. comm.	6	7	21	13	47
More 1 on 1 instr.	0	2	8	0	10
More instr. time	2	2	1	3	8
Organize course	2	0	1	1	5
Certain sections taught in class	0	0	1	5	6
No change	31	32	57	15	135
Other	3	4	9	1	17
Total	44	47	99	38	228

$\chi^2 = 43.9, p < .05$

Note: Instr. = instructor; comm. = communication.

Table 20 shows the relationship between course improvements and age. Most respondents of all age categories want more contact with the instructor. In particular, the age groups of 25-29 and 30-39 show more concern with this improvement than the other age categories. However, most respondents were unsure of other course improvements at this time.

Table 20

Course improvements recommended by students for distance courses by age

Response	Age				Total
	16 - 24	25 - 29	30 - 39	40 +	
More instr. comm.	6	13	17	5	41
Hotline for help	2	1	10	0	13
More instrl. time	0	0	4	7	11
No change	34	28	57	24	143
Other	2	5	11	2	20
Total	44	47	99	38	228

$\chi^2 = 33.9, p < .05$

Note: Instr. = instructor; comm. = communication; instrl. = instructional.

Delphi Questionnaire

The Delphi questionnaire data was collected in two rounds over a period of nine months, from June, 1998 to February, 1999. The questionnaire was designed to explore questions of accessibility, technology and cost-effectiveness of distance learning among the campus administrators of the college. A criterion for convergence was established as ten of the fourteen panel members were in agreement on the item.

Round One Results. Convergence was obtained on 17 of the 23 questions on round one of the survey (Appendix L). This left only six questions to be followed up in round two. Table 21 shows the question of convergence and the nature of convergence among administrators. Generally, administrators agreed on most issues concerning accessibility, technology, cost-effectiveness, and the future of distance learning in the public college system.

Round Two Results. The Round Two questionnaire (Appendix M) consisted of the six questions that showed divergence on the Round One questionnaire. Round Two again showed there was no convergence of opinion among administrators concerning these six questions.

Both rounds show there is discrepancy among campus administrators concerning the level of staffing required at each campus for operational support.

Table 21

Delphi questionnaire - Round One: Administrator convergence of opinion

Question	Nature of Convergence
What is the role of the administrator in distance learning?	Initiation and development of courses
Do instructors feel threatened by distance learning?	Instructors feel threatened due to security issues
What is the level of acceptance of distance among administrators, instructors and students?	Somewhat accepted among administrators, instructors and students
What problems will the college experience implementing distance?	Technical difficulties, support services and financial resources required for distance learning initiatives

(table continues)

Question	Nature of Convergence
What kinds of technology can the college implement?	Web-based, video-conferencing and teleconferencing
What would be the cost of distance learning for the student?	Less costly for the student due to no travelling and accommodation expenses
How important is cost-effectiveness when implementing distance courses at the college?	Cost-effectiveness is somewhat important to the college
What proportion of distance courses do administrators think should be offered by college?	Only some courses should be offered through the college
How important is the expansion of distance courses in the next five years at the college?	Expansion is very important

(table continues)

Question	Nature of Convergence
What is the likelihood of distance expanding in the next five years?	Expansion of distance courses is highly possible
Will accessibility for students be increased by offering distance?	Accessibility will be increased
What is the importance of accessibility of courses for students?	Accessibility of courses is somewhat important to students
Is there a shift at the college towards off-campus courses as opposed to on-campus courses?	The shift would be a slow process at the college
What is the future direction of distance learning at the college?	There is a future, however, certain conditions apply (see Appendix M)
What are some general comments from administrators about distance learning at the college?	There is a whole multiple of suggestions for distance courses at the college (see Appendix M)

Some administrators believed the operational support is quite sufficient while others indicated staffing should be increased.

The question of distance learning and the impact of employment among instructional staff revealed that campus administrators were very uncertain about the impact. Round one had campus administrator opinions show an increase in employment, however, round two, showed campus administrators answering with no change in employment among instructional staff.

Campus administrators also could not agree on how well the quality of learning for distance students compared to the conventional method of learning. Both rounds showed a complete division of opinion.

The issue of whether distance learning is more or less costly for the public college had administrators close to convergence in both rounds of questions, but there was still some disagreement. Some administrators believed that the amount of time to develop courses, the time for instruction, and the acquisition of proper resources will be costly; while others believed, despite it being costly, distance can be justified if it is accessible to large numbers of students.

The question of the proportion of courses that would likely be offered five years from now brought a complete divergence of opinion among campus administrators in both rounds. Campus administrators could not agree on any proportions whatsoever.

On the issue of the level of demand for the college to offer courses through distance learning campus administrators in round two were moving closer to a convergence of opinion than in round one. While some administrators believed there is a moderate demand for the college to offer courses through distance learning, there was still no consensus of opinion.

Summary of Results

General Research Question. On the general research question about the future of distance learning, there was general agreement that distance learning should be part of future college programs. However, the various groups showed divergence of opinion on the specific place that distance should occupy. Administrators tended to believe that the college should proceed with caution and focus on building distance learning one step at a time. Instructors suggested that the future of distance learning was really dependent on who is at the helm of both the college and government.

The student survey indicated that the future direction of distance at the college must focus more on: communication with instructors, organization of courses and careful selection of courses to be offered through distance learning. The cross-tabulation of the student survey by work-status shows that full-time and part-time workers indicate a desire to see the inclusion of some courses offered through distance learning. An interesting point is that unemployed

workers were of the same opinion as full-time and part-time workers. However, the seasonal workers were not as supportive. The cross-tabulation of the student survey by age reveals that 30-39 year olds indicate the future of distance learning at the college should focus on offering only some courses through distance. The age groups of 16-24 and 25-29 also were of the same opinion but the response was less supportive.

Specific Research Questions. There were several specific research questions of this study. These were:

What improvements can be brought about in the programming initiatives of the public college by setting up distance learning?

The administrators indicated that they were uncertain about what the exact improvements would be. This was due to the fact that the college is only beginning to embark on offering different courses through distance. Accessibility was seen as an important improvement, however, time will be the deciding factor. The instructors were also uncertain about the improvements in programming initiatives. There was a mixed opinion of how many courses should be offered and the type of course offered. However, accessibility was seen as an important factor. The student survey process showed that students want programming changes to reflect that only some courses are appropriate to be offered through distance. The Delphi panel members were also uncertain

about the improvements in programming initiatives due to the early stage of distance. Accessibility was noted once again as being an important improvement.

What problems, if any, will distance learning create for the public college?

Given the infancy of distance at the college administrators tended to express an uncertainty about the overall problems; however, financial and support services were repeatedly mentioned. Instructors revealed a diversity of opinion due to the fact that distance is in an early stage of growth (or lack of) at the college. Some problems mentioned were lack of instructor workshops and course development. The student survey indicated problems of technology changing at such a rapid pace. The Delphi Panel suggested current problems include: changing technology, financial resources, course curriculum and development, lack of professional development for instructors, and support services.

Will distance learning be cost-effective for the public college?

Both administrators and instructors were uncertain about the cost-effectiveness because distance learning is at such an early stage of development. The student survey indicated that distance would certainly be cost-effective for the student. However, for the college, students were uncertain about the cost-effectiveness. The Delphi panel members displayed some

convergence of opinion in the two rounds of questions, however, uncertainty once again prevailed due to the early stages of distance in the college system.

Will students avail of distance learning programs established at the campuses of the public college?

Administrators believed that students will avail of distance courses.

However, the process may be gradual. Instructors were of the same opinion and suggested the distance learning population will grow over time. The student survey process indicated that students will avail of courses through distance.

The Delphi panel members also expressed the view that over time students will avail of courses through distance.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary of Purpose

The purpose of this study was to examine perspectives on distance learning that exist in the public college system; these perspectives were determined through a process that involved administrators, instructors, and students. Specifically, the study was designed to: (a) investigate the direction of distance learning as perceived by administrators, instructors, and students, (b) ascertain the level of acceptance of distance learning in the college and the community, (c) examine the extent to which distance learning should be utilized, (d) investigate the extent to which students will avail of distance courses, and (e) explore the cost-effectiveness of distance learning.

Summary of Methods

Three methods of data collection were used in this study: interviews, a student survey, and a Delphi panel. The main issues being addressed were accessibility of distance learning, technologies being implemented, cost-effectiveness of distance learning, and the direction of distance learning in the college system.

Ten persons were interviewed; three were senior college administrators,

six were college instructors and the Assistant Deputy Minister of Education responsible for the college system. Interviews with key-informants were an important source of information because of the informants knowledge, position of influence and direction in the system.

The survey sample consisted of 282 students from the college's distance learning population of 955 for the 1995-96 academic year. Due to financial restrictions only 228 respondents were surveyed, for a response rate of approximately 81%. Telephone interviews were used to gather data on the main issues (already noted), student experiences, recommendations for changes, and improvements in distance learning courses at the college.

The Delphi panel consisted of 14 members; two campus administrators from each of the seven college districts. The Delphi panel was designed to determine if there was a convergence of opinion among campus administrators on distance learning initiatives of the college. Two questionnaires were used to elicit information from panel members, with panel members being informed of the results of the first before being given the second.

Conclusions and Recommendations

The main conclusion from the study reflects a tone of both optimism and caution about the future of distance learning in the college system. However, distance learning is in the early stages of development at the college and its precise future is unclear. Participants agree that the college should offer some courses in this manner but there is uncertainty about the growth and direction of distance learning. The literature clearly reveals that the fundamental premise of distance learning is to provide for the accessibility of education for students. Participants have no question about the fundamental premise of distance learning or continuing to offer distance learning in the college system. The concern among participants is the direction and approach the college should pursue in distance learning initiatives. The general consensus among respondents is to develop college initiatives and strategies building distance learning one block at a time.

Recommendation: The public college of Newfoundland and Labrador should continue to offer distance learning utilizing the scattered nature of the campuses throughout the province but at a moderate pace. Distance learning provides increased accessibility and flexibility for students, however, technology and the cost-effectiveness of distance for the college is in a state of transition. The question concerning the best technology to implement continues to change with the rapid pace of technological advances. The cost-effective question for

the college has no current reliable figures. Reasonably, the argument could be made that distance learning will not anytime soon replace the traditional approach of learning at the college. Therefore, a moderate pace of delivery through distance learning in the college system would suffice at this time until further research is completed on issues such as technology and cost-effectiveness.

The question of improvements that can be brought about in college programming initiatives through distance learning lead to a diversity of opinion among participants. Participants indicate that programming changes will occur, but were not precisely sure how this would happen. The issue of the problems that distance learning may create for the college is interlinked with the programming initiatives. The ability to maintain programming initiatives creates the concern of keeping pace with rapidly changing technology. Additional problems of concern related to technology were support services for students and the financial factors involved.

The literature acknowledges that distance learning has grown over the past 20 to 30 years. Advances in technology is the driving force that provides distance learning with the edge at the turn of the century. The literature also maintains that distance learning offers both accessibility and independence for the learner. However, with technology growing so rapidly, questions of concern

for institutions are: "How far will technology advance?"; "Can institutions maintain the cost of technological advancement?"; "What methods of delivery would students prefer?"

This study reveals that the main approach used by the college to communicate between instructor and student was correspondence. However, the student survey response and the cross-tabulation by age (especially 30-39) indicate the preference of students was correspondence and other methods such as the computer (e-mail and the web), fax, and teleconferencing would be an asset.

Recommendation: The college can approach programming initiatives, rapidly changing technology decisions and methods of student preference through systematically merging their present technology (print-based and video) with more sophisticated delivery approaches (interactive video, e-mail, the web, teleconferencing, and audioconferencing). The combination of present technology with new and developing technology when offering courses through distance provides choice and allows each technology to find its place in the total system.

The matter of cost-effectiveness has not been studied adequately in the public college system. In fact, there are no reliable current figures on the cost of distance learning for the college. Both administrators and instructors were uncertain about the cost-effectiveness due to the early stages of distance in the college system. The survey results did indicate students perceive distance learning as cost-effective for them because the opportunity to study at home, negates travelling and accommodation costs. However, with no accurate figures of cost-effectiveness the college will have difficulty determining if distance learning is a viable option. The literature reveals that the cost-effectiveness of distance learning is an individual institution decision based upon many factors. These factors include (but are not limited to): mission statements, educational goals, operating budgets, available technologies, and current curriculum resources for the programs and courses offered. These factors should at least be considered before distance learning is completely implemented across the college system.

Recommendation: A study is needed to determine the actual costs (not just the perceived cost) of distance learning relative to the traditional approach of learning in the college system. Factors to consider as cost calculations in such a study are: (a) the amount students pay, (b) completion rates, (c) materials used, (d) the population base being reached, (e) instructional salaries, (f) support staff required, and (g) technology available.

This study further reveals that students will avail of distance courses offered through the public college system but the process will be gradual. Related to this outcome were the reasons why. The cross-tabulation by work-status indicates that the main reasons for participants completing a course through distance learning were upgrading purposes or work related reasons. In the case of upgrading purposes, the distance course(s) were completed to graduate from high school or to upgrade an already existing mark to enter post-secondary. In the case of work related reasons, the employer usually stipulated the course required. The cross-tabulation by age also reveals the main reason of participants for completing a course through distance were for upgrading purposes and work related reasons. Also, the main advantage of completing courses through distance learning from the descriptive data were determined to be learning at home and no travelling. The literature supports these findings and indicates that studying at home, at one's own pace, and in one's own time are some of the primary reasons for completing courses through distance learning . Also, the accessibility to education for those people who work is sometimes key to advancement and promotion.

Recommendation: The college should carefully monitor distance courses to determine those courses with high participation rates. These are the courses the college should continue to maintain as part of their main menu of distance learning courses. The college should also make contact with

employers who are having their employees enrol in distance courses to determine the assistance that can be provided. Offering courses requested by students and employers sets the stage for increased participation in distance learning courses.

This study also shows that the main disadvantage of completing courses through distance at the public college system was the lack of instructor communication and availability. Students were very vocal concerning the issue of communication problems with college instructors. Cross-tabulations by work-status and age, on this issue, shows that course changes and improvements recommended by students was - more communication with instructors. The cross-tabulation by work-status reveals that full-time, part-time, seasonal, and unemployed workers want more communication with instructors. In particular, at least 18% of the work force recommended this as an improvement in distance learning courses. The cross-tabulation by age shows that the age groups of 25-29, and, 30-39 wanted more communication with the instructor than the other age groups. However, approximately 21% of the entire age category recommended this as a change to distance learning courses. Therefore, from the student survey results the communication process needs to be improved between instructor and student. The literature indicates that the evolution of technology can improve the communication process through such methods as

teleconferencing, audioconferencing, interactive video, fax, e-mail and the world wide web.

Recommendation: The college should review the internal communication process between instructors and students involved in distance learning courses. Advances in technology is certainly one way to improve the communication process in the college system. Instructors should be available at the college through such methods as direct phone numbers, e-mail, fax, and teleconferencing. A further suggestion of an on-line help service via the world wide web can also help maintain accessibility and communication between instructors and students.

The inquiry asking how students heard about the college offering distance learning courses reveals that it was through person to person contact. Almost one half of the participants surveyed responded in this manner. This means that the actual advertising of distance courses was mainly through "word of mouth". The literature indicates that the fundamental concept of distance learning is accessibility. However, if students of this province are unaware of distance learning courses being offered at the college, the issue of accessibility to courses will serve no purpose.

The restructuring of the public college system in 1997 did establish a Marketing and International department with a major focus on college

advertising. The students of this study were surveyed prior to the establishment of this department. Therefore, not enough information is presently available to make any kind of recommendation about present college advertising. However, several questions for consideration can be raised for exploration at this time. These questions include: "Is the current college advertising methods effective?"; "Which method of advertising is the most effective?"; "Is person to person advertising as effective as current advertising schemes?"; "With the expansion of technology, is college advertising reaching all the people of this province?"; "Do students actual know that courses are accessible through distance learning at the public college?".

Limitations of the Study

This study had several limitations. First, it is clear that this research provides for only a snapshot of perceptions at a particular time. In five to ten years from now the perception of people may have changed concerning distance learning as a delivery medium for college courses. Whether that perception changes for the better or worse only time will be the deciding factor.

Another limitation is technologies will also change over time; the technology of today, certainly will not be the technology of tomorrow. Technology grew at a minimal pace from the 1950s to the 1980s as compared to the last twenty years where the growth of technologies as occurred twice as fast.

Technology, for example, now has the potential to solve communication problems that exist between instructors and students. It is also clear that technological change in the twenty-first century is imminent, the only factor will be the pace of change.

Another limitation is the distance learning sample. Distance learning has changed substantially since the inception of a single public college system in the province, College of The North Atlantic, and the sample can not be claimed to be representative of students currently taking distance learning courses.

Finally, the cost-effectiveness investigated in this research was one of perceived cost. Administrators, instructors, and students had their own version of the cost of distance learning in the college. There were no current accurate figures about the cost of distance learning for the public college system. Unfortunately, it is difficult to judge the cost-effectiveness of distance learning in the pilot stages of development. In order to determine if distance learning is cost-effective, a study is required to compare the actual cost projections of distance learning relative to the traditional-based approach.

Suggested Areas for Further Research

The public college system of Newfoundland and Labrador is now in the midst of another evolution. During the 1960s, the initial concept of the college was to develop skilled trades persons and upgrade basic educational levels.

The first stage of evolution was in the 1970s with the addition of technical and vocational courses. The area of continuing education was not added until the late 1980s. Distance learning, the second stage of evolution, has become a revolution in terms of the technological advances available, the public need for accessibility to courses and the growth potential of distance learning for community colleges. Distance learning requires further research since this is a relatively new programming initiative for community colleges.

There are many areas for further research in distance learning. The implications of this study suggest the following areas can be explored in the college system. First, a study should be conducted to determine the actual cost-effectiveness of distance learning relative to the traditional-based approach of learning in the public college system. Questions for consideration in such a study are: "How does the cost-effectiveness of distance learning compare to completing the same course on campus?"; "Can distance learning be cost-effective in a public college system of this size?"; "If distance learning is cost-effective for the student and not for the institution, who pays for the expenses?".

Another suggested study is one to determine the communication problems that exist between students, instructors, and the institution offering distance learning courses. Several questions warranted here are: "Is the communication problem a design flaw of the course?"; "Is the communication problem inherent, since the college offered distance learning courses through

correspondence where communication is least effective between instructor and student?"; "Are instructors responding or available for students?".

Another suggestion is a longitudinal study to determine the long-term effects of technology-based learning compared to traditional learning. Is there a difference?

Finally, a study to determine the focus and direction of distance learning in the public college system. Such a study can raise questions of: "What technologies will be the most effective?"; "Should distance learning focus primarily on courses required by employers?"; "Should distance learning encompass all programs and courses offered in the public college system?"; "Are students in remote areas of the province availing of distance learning courses?"; "Are students close to the campus enrolling in distance learning courses in greater numbers than students further from the campus?". Although not necessarily a conclusive list these suggested areas seem to be major concerns stemming from this study. These research suggestions can help determine whether or not distance learning as the potential to be an effective method of delivery for the public college system of Newfoundland and Labrador.

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Appendix A

Telephone Contact Administrators and Instructors

The potential college personnel for interviewing purposes were contacted by telephone. They were informed that this telephone contact is for work on my thesis at Memorial University of Newfoundland. The purpose of the research that is being conducted was explained. Each potential college personnel was asked to participate by the form of an interview. They were informed that their participation in this research is entirely voluntary and they may withdraw at any time or opt out of responding to any question. A date and time for the interview was arranged at their convenience during this telephone conversation. The interview can be either in-person or by the telephone, whichever is most suitable for the interviewee. Confidentiality was ensured through an informed consent form (Appendix I). They were further informed that if they required information about the legitimacy of this research they can contact my supervisor, Dr. Robert Crocker, Professor, Faculty of Education, Memorial University of Newfoundland, at 709-737-8741, or Dr. Linda Phillips, Associate Dean, Graduate Programmes and Research, Faculty of Education, Memorial University of Newfoundland, at 709-737-8625.

The interviews were semi-structured, open-ended and guided by the questions of Appendix B.

Appendix B
General Guideline Questions for Interviewing
Administrators and Instructors

Guidelines Questions for Interviewing Administrators:

- 1) Can you tell me your involvement as an administrator with distance learning college programs?
- 2) What do you see as being the major strengths of distance learning?
- 3) What do you see as being the major weakness of distance learning?
- 4) How do you feel about distance learning as opposed to the conventional mode of teaching at the campus?
- 5) Can you tell me your experience with the cost of distance learning?
- 6) Do you feel that distance learning will be cost-effective for the public college?
On what basis?
- 7) Are there ways to make it less costly? How?
- 8) Should the public college system be expanding to include distance learning courses? Why?
- 9) Will distance learning create problems for the public college? What kind of problems, if any?
- 10) Do you feel that students will avail of the opportunity to take distance learning courses? Why?
- 11) Do you feel that the accessibility of courses for students will be improved or not? Why?
- 12) What changes in programming, if any, will be brought about in setting up distance learning at the public college?

13) Do you think that the quality of instruction would be better or worse under distance learning? Why?

14) Do you think instructors will see distance learning as a threat to their jobs? Why?

15) What kinds of technology do you see being used for distance learning at the public college?

16) What extent do you feel that distance learning should be used in the public college system?

17) What do you think is the level of acceptance of distance learning among administrators? instructors? students?

18) What do you think is the future direction of distance learning in the public college of Newfoundland and Labrador?

General Guideline Questions for Interviewing Instructors:

- 1) Can you tell me the kinds of experiences you have had instructing distance learning courses at the college?
- 2) How do you feel about distance learning as opposed to the conventional mode of teaching at the campus?
- 3) What kinds of methods do you prefer to use when instructing distance learning courses?
- 4) Did you like or dislike instructing distance learning courses? Why?
- 5) Do you feel that students will avail of the opportunity to take distance learning courses? Why?
- 6) What do you see as being the major strengths of distance learning?
- 7) What do you see as being the major weakness of distance learning?
- 8) Should the public college system be expanding to include more distance learning courses? Why?
- 9) Do you think that distance learning will be cost-effective for the public college?
- 10) Do you feel that the implementation of distance learning will be a threat to your job at the public college?
- 11) What changes in programming, if any, do you think will be brought about in setting up distance learning at the public college?

12) Do you think that the quality of instruction would be better or worst under distance learning? Why?

13) What do you think is the future direction of distance learning in the public college of Newfoundland and Labrador?

Appendix C

Telephone Contact and Letters to Delphi Panel

The potential college personnel for the Delphi panel were contacted by telephone. They were informed that this contact is for work on my thesis at Memorial University of Newfoundland. The purpose of the research being conducted and the reasons for a Delphi panel were explained. Each potential college personnel was asked to participate on this Delphi panel. They were informed that their participation in this research is entirely voluntary and they may withdraw at any time or opt out of responding to any question. An explanation was given concerning the two or more questionnaires that would have to be completed as a member of the panel. Panel members were also informed that the time frame for the completion of both questionnaires will be over an eight month period. All members of the panel were ensured confidentiality of their responses. They were also be informed that if they required information about the legitimacy of this study they can contact my supervisor, Dr. Robert Crocker, Professor, Faculty of Education, Memorial University of Newfoundland, at 709-737-8741, or Dr. Linda Phillips, Associate Dean, Graduate Programmes and Research, Faculty of Education, Memorial University of Newfoundland, at 709-737-8625.

Panel members were also be informed that the first questionnaire would arrive shortly with a brief letter of explanation.

My Address**Date****Persons Address****Dear [persons name],**

In reference to our conversation on [date] concerning my thesis research and your agreement to serve on the Delphi panel, I would like to reiterate that the purpose of the panel will be to explore the future of distance learning by completing two or more questionnaires. The completion of both questionnaires will extend over an eight month period. Your participation in this research study is entirely voluntary and you may withdraw at any time or opt out of responding to any question. Your confidentiality as a member of this panel is guaranteed. Therefore, your name is not required on this questionnaire.

The results of the first questionnaire will be analyzed and then the second questionnaire will be sent to you along with the results of the first questionnaire.

If you require further information concerning the legitimacy of this study, you may contact my supervisor, Dr. Robert Crocker, Professor, Faculty of Education, Memorial University of Newfoundland, at 709-737-8741, or Dr. Linda Phillips,

date

persons name

page 2

**Associate Dean, Graduate Programmes and Research, Faculty of Education,
Memorial University of Newfoundland, at 709-737-8625.**

**Enclosed is the first questionnaire and a self-stamped envelope. Please return
when completed.**

**If you have any concerns or questions, please give me a call at 709-786-6346(h)
or 709-596-8924(w).**

Thank-you in advance for your time and cooperation.

Sincerely,

R. E. Paul Barrett

My Address**Date****Persons Address****Dear [persons name],**

In reference to our conversation on [date] concerning my thesis research and your agreement to serve on the Delphi panel, I would like to reiterate that the purpose of the panel will be to explore the future of distance learning by completing two or more questionnaires. The completion of both questionnaires will extend over an eight month period. Your participation in this research study is entirely voluntary and you may withdraw at any time or opt out of responding to any question. Your confidentiality as a member of this panel is guaranteed. Therefore, your name is not required on this questionnaire.

The results of the first questionnaire have been analyzed. Enclosed are the results and the Delphi Panel - Round Two questionnaire.

If you require further information concerning the legitimacy of this study, you may contact my supervisor, Dr. Robert Crocker, Professor, Faculty of Education, Memorial University of Newfoundland, at 709-737-8741, or Dr. Linda Phillips,

date

persons name

page 2

**Associate Dean, Graduate Programmes and Research, Faculty of Education,
Memorial University of Newfoundland, at 709-737-8625.**

**Enclosed is a self-stamped envelope. Please return questionnaire #2 when
completed.**

**If you have any concerns or questions, please give me a call at 709-786-6346(h)
or 709-596-8924(w).**

Thank-you in advance for your time and cooperation.

Sincerely,

R. E. Paul Barrett

Appendix D

Delphi Panel Questionnaire - Round #1

Delphi Panel Questionnaire**Round #1****Question 1:**

What has been your role in distance learning as a college administrator?

Question 2:

Think about the level of administrative staffing (secretaries and technical support) required for the operational aspects of distance learning courses at the campuses. At present, do you think that there is:

_____ sufficient administrative staff at each campus for operational support

or

_____ not a sufficient administrative staff at each campus for operational support

Question 3:

What impact do you think distance learning will have on the employment of instructional staff?

Increased employment _____

Decreased employment _____

No change in employment _____

Question 4:

Do you think instructors feel threatened by the concept of distance learning?

Yes ___ or No ___

Why? _____

Question 5:

What do you think is the level of acceptance of distance learning among administrators? (Please circle one answer only).

- a) highly accepted
- b) somewhat accepted
- c) somewhat unaccepted
- d) highly unaccepted

Question 6:

What do you think is the level of acceptance of distance learning among instructors? (Please circle one answer only).

- a) highly accepted
- b) somewhat accepted
- c) somewhat unaccepted
- d) highly unaccepted

Question 7:

What do you think is the level of acceptance of distance learning among students? (Please circle one answer only).

- a) highly accepted
- b) somewhat accepted
- c) somewhat unaccepted
- d) highly unaccepted

Technological Questions:**Question 8:**

Can you please identify any problems that you think the public college will experience implementing courses by distance? (Please list as many as possible.

You are not limited to the number of spaces provided).

- | | |
|----------|----------|
| 1) _____ | 5) _____ |
| 2) _____ | 6) _____ |
| 3) _____ | 7) _____ |
| 4) _____ | 8) _____ |

Question 9:

Think about the kinds of technologies that the college can implement to offer distance learning. Can you please list the kinds of technologies that you see being implemented? (Please list as many as possible. You are not limited to the number of spaces provided).

- | | |
|----------|----------|
| 1) _____ | 5) _____ |
| 2) _____ | 6) _____ |
| 3) _____ | 7) _____ |
| 4) _____ | 8) _____ |

Question 10:

How well do you think the quality of learning for distance students compares to the conventional method?

Better _____

Worse _____

Same _____

Cost-effectiveness Questions:**Question 11:**

Think about the cost of distance learning delivery for the public college. At present, do you think that delivery of courses by distance will be:

_____ more costly for the public college

or

_____ less costly for the public college?

Why? _____

Question 12:

Think about the cost of distance learning delivery for the student. At present, do you think that delivery of courses by distance will be:

____ more costly for the student

or

____ less costly for the student?

Why? _____

Question 13:

In implementing distance learning one of the key issues to be addressed is cost-effectiveness. At present, how important do you think for college administrators is the issue of the cost-effectiveness in the decision-making of implementing distance learning at the campus level? (Please circle one answer only).

- a) highly important
- b) somewhat important
- c) somewhat unimportant
- d) highly unimportant

Future Questions:**Question 14:**

What proportion of distance learning courses do you think should be offered by the public college:

- most courses by distance
- some courses by distance
- a few courses by distance
- no courses by distance

Question 15:

In your view, how important is it that distance learning expand throughout the public college in the next five years?

(Please circle one answer only).

- a) very important
- b) somewhat important
- c) somewhat unimportant
- d) very unimportant

Question 16:

How would you rate the likelihood of distance learning expanding throughout the public college in the next five years? (please circle one answer only).

- a) highly likely
- b) somewhat likely
- c) somewhat unlikely
- d) highly unlikely

Question 17:

Think about distance learning five years from now. In your view, what proportion of courses of the college would likely be offered by distance:

___ 0%-20% ___ 21%-40% ___ 41%-60%
___ 61%-80% ___ 81%-100%

Accessibility Questions:**Question 18:**

Do you think by offering courses through distance learning that the public college will increase accessibility for students?

Yes ___ No ___

Question 19:

What level of demand do you think exists for offering courses by distance through the public college system?

(Please circle one answer only).

- a) high demand
- b) moderate demand
- c) low demand
- d) no demand

Question 20:

Think about the importance of accessibility of courses for students. How important for students do you think is the issue of accessibility of courses by distance?

- a) very important
- b) somewhat important
- c) somewhat unimportant
- d) very unimportant

Question 21:

Assume for the moment that most all courses at the public college can be completed either on-campus or off-campus through distance learning. In your opinion, do you think that the college enrolment would shift from on-campus to off-campus:

- a) quickly
- b) moderately
- c) slowly
- d) remain unchanged

General Questions:**Question 22:**

In general, what do you think should be the future direction of distance learning in the public college of Newfoundland and Labrador?

Question 23:

Do you have any general comments that you would like to contribute concerning the public college and distance learning delivery of courses and/or problems?

Thank-you for your time and cooperation.

Appendix E

Delphi Panel Questionnaire - Round #2

Delphi Panel Questionnaire**Round # 2****Question 1:**

Think about the level of administrative staffing (secretaries and technical support) required for the operational aspects of distance learning courses at the campuses. At present, do you think that there is:

_____ sufficient administrative staff at each campus for operational support

or

_____ not a sufficient administrative staff at each campus for operational support

Question 2:

What impact do you think distance learning will have on the employment of instructional staff?

Increased employment _____

Decreased employment _____

No change in employment _____

Question 3:

How well do you think the quality of learning for distance students compares to the conventional method?

Better _____

Worse _____

Same _____

Cost-effectiveness Questions:**Question 4:**

Think about the cost of distance learning delivery for the public college. At present, do you think that delivery of courses by distance will be:

_____ more costly for the public college

or

_____ less costly for the public college?

Why? _____

Question 5:

Think about distance learning five years from now. In your view, what proportion of courses of the college would likely be offered by distance:

___ 0%-20% ___ 21%-40% ___ 41%-60%

___ 61%-80% ___ 81%-100%

Question 6:

What level of demand do you think exists for offering courses by distance through the public college system?

(Please circle one answer only).

- a) high demand
- b) moderate demand
- c) low demand
- d) no demand

Appendix F
Student Telephone Survey Questionnaire

The following information was read to the student at the beginning of the student telephone survey questionnaire.

Good-Evening, [Student Name]:

My name is Paul Barrett. I am completing a survey of students who have been involved with distance learning in the public college system. This work is for my thesis project at Memorial University of Newfoundland.

I understand that you have taken a distance learning course [name of course] from the [name of former college]. Is this correct? [Yes/No] Would you mind answering a few questions about your experience in this course? [Yes/No]

This is completely confidential and your name will not be recorded on this survey or anywhere in this study. Your participation in this research study is entirely voluntary and you may withdraw at any time or opt out of responding to any questions. If you require information about the legitimacy of this study, you may contact my supervisor, Dr. Robert Crocker, Professor, Faculty of Education, Memorial University of Newfoundland, at 709-737-8741, or Dr. Linda Phillips, Associate Dean, Graduate Programmes and Research, Faculty of Education, Memorial University of Newfoundland, at 709-737-8625.

Thank-you in advance for your participation.

Note: If student asked for the source of where his/her name was found, this researcher informed the student the information was released from the public college system.

Student Telephone Survey Questionnaire

1) How did you hear that the college was offering distance learning courses?

(Responses are not to be read for this question).

Newspaper AD Radio Cable other: _____
 College Brochure person to person

2) What was your main reason for doing a distance learning course at the college? (open-ended)

Response: _____

3) What do you consider to be the main advantages of distance learning for you? (Responses are not to be read for this question).

Learning at Home Less Cost No Travelling
 Other: _____

4) What do you consider to be the main disadvantages of distance learning for you? (Responses are not to be read for this question).

not enough instructional time
 instructor not available
 receiving textbooks on time
 not well oriented to the program other: _____

5) In general, do you think that the distance learning course was better or worse than the traditional classroom approach to learning?

_____ Better _____ Worse

Can you explain why: _____

6) Think about the cost of distance learning, in your view was the distance learning course:

___ more costly for you

___ about the same, or

___ less costly for you

than a regularly campus course?

7) Think about what methods were used to communicate between the instructor and student. Can you tell me:

- | | | |
|--|--------|-------|
| a) Did you use the telephone? | Yes___ | No___ |
| b) Did you have any face-to-face meetings? | Yes___ | No___ |
| c) Did you use correspondence? | Yes___ | No___ |
| d) Did you use e-mail? | Yes___ | No___ |
| e) Did you use the fax? | Yes___ | No___ |
| f) Did you use any videotapes? | Yes___ | No___ |
| g) Did you use teleconferencing? | Yes___ | No___ |

h) Did you use telewriting? Yes___ No___

i) Were there any other methods used? Yes___ No___

8) How difficult was this course as compared to on-campus courses?

___ very difficult

___ somewhat difficult

___ slightly difficult

___ not very difficult

9) Do you think you have learned as much from the distance learning course as an on-campus course?

___Yes No___

If answer no: Why do you say that?_____

10) Think about the materials in the course, in your judgement, how adequate was the materials for this course?

___ very inadequate

___ somewhat inadequate

___ somewhat adequate

___ very adequate

15) In your opinion, should the public college system continue to pursue distance learning as a means of delivery for college courses?

___ Yes ___ No

If answer no: Why do you say that? _____

16) What future direction would you like to see the public college system pursue in distance learning?

_____ most courses should be offered through distance

_____ some courses should be offered through distance

_____ a few courses should be offered through distance

_____ no courses should be offered through distance

17) If you had the opportunity to change anything about a distance learning course you have completed, what would you change? (open-ended)

Response: _____

18) What do you feel can be improved upon in the distance learning courses offered through the public college system? (open-ended)

Response: _____

Demographic Data:

I would like to now ask you some personal information.

19) Can you tell me which age group you are in:

- a) Are you 16-19 ___ e) Are you 30-39 ___
- b) Are you 20-24 ___ f) Are you 40-49 ___
- c) Are you 25-29 ___ h) Are you 50 or more ___

20) Can you tell me about your current employment status from the following questions:

- a) Are you working full time? Yes ___ No ___
- b) Are you working part-time? Yes ___ No ___
- c) Would you consider yourself a seasonal worker?
- Yes ___ No ___

21) Can you tell me about your highest educational qualifications from the following questions:

- a) Did you complete high school? Yes ___ No ___
- b) Did you complete a college certificate or diploma? Yes ___ No ___
- c) Did you graduate from university? Yes ___ No ___
- d) Did you ever attend university? Yes ___ No ___

Appendix G

Calculation of the Random Sample for Student Survey

Calculation of the selection of a random sample of students from the public college system population of distance learners for the 1995-1996 academic year (Scheaffer, Mendenhall & Ott, 1979, p. 43 & 49).

$N = 955$, the college population of distance learners for 1995-96

$B = 5\%$, the bound on the error of estimate

$p = 0.50$, $q = 0.50$

$D = B^2/4 = (.05)^2/4 = 0.0025/4 = 0.000625$

Hence,

$$\begin{aligned} n &= Npq/(N-1)D + pq \\ &= (955)(0.5)(0.5)/954(0.000625) + (0.5)(0.5) \\ &= 238.75/0.84625 \\ &= 282.1 \end{aligned}$$

Therefore, for a 95% accuracy rate with a margin of error of 5%, the sample size is, $n = 282$, for the given distance learning student population size for the 1995-1996 academic year of the public college system of Newfoundland and Labrador.

Appendix H

Letters Requesting Permission of Student Information

College Of The North Atlantic
Carbonear Campus
P. O. Box 60
Carbonear, NF
A1Y 1B5

February 16, 1998

Mr. Dorm Chipp
Director of Student Services
College Of The North Atlantic
P. O. Box 5400
Stephenville, NF
A2N 2Z6

Dear Mr. Chipp:

Further to our conversation on 1998 02 13, as you are aware I am writing my Master's thesis on distance learning. In particular, the title of this thesis is "Perspectives on the Future of Distance Learning: A study of administrators, instructors and students of the public college of Newfoundland and Labrador". I would like to request access to the names, addresses and phone numbers of all students who have participated in a distance learning course at the College Of The North Atlantic. An appropriate sample will be drawn and a phone survey of pertinent research questions would follow.

I feel that this thesis can be of tremendous significance to the public college and that the results can help guide us in a new technological direction for college programs. I will forward to you a copy of the thesis when approved by the university.

I look forward to hearing from you.

If you need any additional information, please give me a call at 709-596-8924 (w) or 709-786-6346 (h).

Sincerely,

R. E. Paul Barrett



February 23, 1998

Mr. Paul Barrett
College of the North Atlantic
Carbonear Campus
P. O. Box 80
Carbonear, NF
A0A 1T0

Office of the Director
Student Services
432 Massachusetts Drive
P.O. Box 5400
Stephenville, Newfoundland
Canada A2N 2Z6

Tel.: (709) 643-7732
Fax: (709) 643-7843
dchipp@northatlantic.nf.ca

Dear Mr. Barrett:


This is in response to your request for access to the names, addresses and phone numbers of all students who have participated in a distance learning course at the College of the North Atlantic.

The College of the North Atlantic will release this information to you for your Masters Thesis in accordance with our policy SS206 (Student Records) Sub-Section 3.3.7 provided that you guarantee the following three conditions in the form of a letter on your part. These conditions are:

- (i) the release of this information is in confidence;
- (ii) in releasing this information all students are guaranteed confidentially, such that, no students name will be published in this thesis, and
- (iii) the release of this information is for your research purposes only.

Please provide a letter at your convenience, indicating that you will comply with the above conditions.

Yours truly,


Dorm Chipp
Director
Student Services

jb

College Of The North Atlantic
Carbonear Campus
P. O. Box 60
Carbonear, NF
A1Y 1B5

February 27, 1998

Mr. Dorm Chipp
Director of Student Services
College Of The North Atlantic
P. O. Box 5400
Stephenville, NF
A2N 2Z6

Dear Mr. Chipp:

In reference to your letter on 1998 02 23, I agree to comply with all three conditions that you have indicated for the release of student information from the College Of The North Atlantic.

I personally guarantee the following three conditions will be met on my part:

- (i) the release of this information will be kept in confidence,
- (ii) all students are guaranteed confidentially, such that no students name will be published in this thesis only the data obtained, and
- (iii) the release of this information is for the purpose of my thesis research only.

I would also like to take this opportunity to thank-you and the College Of The North Atlantic for supporting my thesis research endeavours.

If you need further information, please give me a call at 709-786-6346 (h) or 709-596-8924/6139 (w).

Sincerely,

R. E. Paul Barrett

Appendix I
Informed Consent

This form requests your participation in a study related to the Perspectives of Distance Learning: A study of administrators, instructors, and students of the public college system of Newfoundland and Labrador.

Your participation in this research study is entirely voluntary and you may withdraw at any time or opt out of responding to any question. In participating, you understand that interviews will be audio-taped for the convenience of the researcher. Your permission to use any information that you provide for this research study is given by signing below. All records or audiotapes of your participation will be kept confidential and your assured anonymity will be protected if any information that you provide is used in this research study.

If you require information concerning the legitimacy of this study you may contact my supervisor, Dr. Robert Crocker, Professor, Faculty of Education, Memorial University of Newfoundland, at 709-737-8741, or Dr. Linda Phillips, Associate Dean, Graduate Programmes and Research, Faculty of Education, Memorial University of Newfoundland, at 709-737-8625.

(Please sign the informed consent attached)

Informed Consent

I, _____, hereby understand the terms and conditions of this consent form as outlined for the indicated research study and give my consent to participate on this _____ day of _____, 1998. This consent on my part allows any information obtained in this interview to be used for the sole purpose of this research study.

Participant Signature: _____

Researcher Signature: _____

Date: _____

Appendix J

Other Cross-Tabulations of Student Survey Questionnaire by Work-Status

Table J1

How students first heard about distance learning by work-status

Response	Work-status				Total
	Full-time	Part-time	Seasonal	Unemployed	
Person to person	43	26	14	23	106
Other	35	8	12	7	62
Newspaper	10	3	3	3	19
College brochure	5	6	2	3	16
Cable	7	6	2	0	15
Radio	5	3	2	0	10
Total	105	52	35	36	228

$\chi^2 = 18.68, p > .05$

Table J2

Do students think the traditional classroom approach is better or worse than the distance learning approach by work-status?

Response	Work-status				Total
	Full-time	Part-time	Seasonal	Unemployed	
Better	61	32	20	20	133
Other	23	17	11	9	60
Worse	19	11	7	9	46
Both	23	7	8	6	44
Total	126	67	46	44	283

$\chi^2 = 3.9, p > .05$

Table J3

Do students think distance learning is more or less costly than regular campus course by work-status?

Response	Work-status				Total
	Full-time	Part-time	Seasonal	Unemployed	
Less costly	92	50	31	31	204
About the same	9	1	3	2	15
More costly	4	1	1	3	9
Total	105	52	35	36	228

$\chi^2 = 4.5, p > .05$

Table J4

Methods used to communicate between instructor and student by work-status

Response	Work-status				Total
	Full-time	Part-time	Seasonal	Unemployed	
Correspondence	88	44	29	31	192
Telephone	76	42	24	30	172
Face to face	53	30	18	23	124
E-mail	13	6	7	3	29
Fax	12	8	1	4	25
Teleconference	3	4	5	2	14
Videotape	4	5	2	2	13
Telewriter	0	0	0	0	0
Other	0	0	0	0	0
Total	249	139	86	95	569

$\chi^2 = 13.4, p > .05$

Table J5

Student responses to the difficulty of a distance learning course as compared to an on-campus course by work-status

Response	Work-status				Total
	Full-time	Part-time	Seasonal	Unemployed	
Not very difficult	60	33	17	19	124
Slightly difficult	36	11	14	12	73
Somewhat difficult	9	7	7	3	26
Very difficult	0	1	2	2	5
Total	105	52	35	36	228
$\chi^2 = 15.8, p > .05$					

Table J6

Do students think they learned as much from a distance course as compared to an on-campus course by work-status?

Response	Work-status				Total
	Full-time	Part-time	Seasonal	Unemployed	
Yes	75	39	26	23	163
No	26	11	8	11	56
Undecided	4	2	1	2	9
Total	105	52	35	36	228
$\chi^2 = 1.6, p > .05$					

Table J7

How adequate were the materials used in the distance learning course by work-status?

Response	Work-status				Total
	Full-time	Part-time	Seasonal	Unemployed	
Somewhat adeq.	53	26	18	20	117
Very adeq.	44	22	16	11	93
Somewhat inadeq.	8	1	0	2	11
Very inadeq.	0	3	1	3	7
Total	105	52	35	36	228

$\chi^2 = 13.3, p > .05$

Note: adeq. = adequate; inadeq. = inadequate.

Table J8

Were students satisfied with the distance learning course evaluation by work-status?

Response	Work-status				Total
	Full-time	Part-time	Seasonal	Unemployed	
Yes	101	50	32	32	215
No	4	2	3	4	13
Total	105	52	35	36	228

$\chi^2 = 6.4, p > .05$

Table J9

Would students consider doing another course through distance at the college by work-status?

Response	Work-status				Total
	Full-time	Part-time	Seasonal	Unemployed	
Yes	99	50	31	31	211
No	6	2	4	5	17
Total	105	52	35	36	228

$\chi^2 = 3.5, p > .05$

Table J10

Method of distance instruction students prefer by work-status

Response	Work-status				Total
	Full-time	Part-time	Seasonal	Unemployed	
Correspondence	60	34	26	27	147
Other: computer	41	22	15	16	94
E-mail	23	14	12	11	60
Teleconference	19	5	11	12	47
Fax	14	7	9	7	37
Telewriter	5	1	3	2	11
Total	162	83	76	75	396

$\chi^2 = 7.7, p > .05$

Table J11

Should the college continue to offer distance learning as a means of course delivery by work-status?

Response	Work-status				Total
	Full-time	Part-time	Seasonal	Unemployed	
Yes	100	51	35	35	22.1
No	5	1	0	1	7
Total	105	52	35	36	228

$\chi^2 = 2.4, p > .05$

Table J12

Student responses to the future direction of distance learning being offered at the college by work-status

Response	Work-status				Total
	Full-time	Part-time	Seasonal	Unemployed	
Some courses	61	33	12	25	131
Most courses	29	15	16	7	67
A few courses	14	3	7	3	27
No courses	1	1	0	1	3
Total	105	52	35	36	228

$\chi^2=14.7, p > .05$

Appendix K

Other Cross-Tabulations of Student Survey Questionnaire by Age

Table K1

How students first heard about distance course by age

Response	Age				Total
	16 - 24	25 - 29	30 - 39	40 +	
Person to person	22	20	48	16	106
Other	8	13	27	14	62
Newspaper	3	2	10	4	19
College brochure	4	5	3	4	16
Cable	5	3	7	0	15
Radio	2	4	4	0	10
Total	44	47	99	38	228

$\chi^2 = 16.6, p > .05$

Table K2

Main advantage of doing a distance learning course by age

Response	Age				Total
	16 - 24	25 - 29	30 - 39	40 +	
Learning at home	27	36	67	25	155
No travelling	13	10	36	21	80
Learn at own pace	14	12	35	7	68
Less cost	4	3	13	8	28
Other	2	1	1	3	7
Total	60	62	152	64	338

$\chi^2 = 17.04, p > .05$

Table K3

Main disadvantage of doing a distance learning course by age

Response	Age				Total
	16 - 24	25 - 29	30 - 39	40 +	
Instr. not available	11	21	44	13	89
No main disadv.	7	6	16	6	35
Not enough instructional time	8	6	11	1	26
Other	2	3	10	8	23
More 1 on 1 instr.	6	3	1	3	13
Receiving books	1	1	3	1	6
Orientation prob.	1	1	1	1	4
Total	36	41	86	33	196

$\chi^2 = 24.7, p > .05$

Note: Instr. = instructor; disadv. = disadvantage; prob. = problem

Table K4

Do students think traditional courses are better or worse than distance learning courses by age?

Response	Age				Total
	16 - 24	25 - 29	30 - 39	40 +	
Better	27	29	58	19	133
Other	14	8	25	13	60
Worse	11	6	15	14	46
Both	6	12	22	4	44
Total	58	55	120	50	283

$\chi^2 = 14.7, p > .05$

Table K5

Students responses to the cost of distance learning courses as compared to traditional courses by age

Response	Age				Total
	16 - 24	25 - 29	30 - 39	40 +	
More costly	41	43	87	33	204
About the same	3	2	8	2	15
Less costly	0	2	4	3	9
Total	44	47	99	38	228

$\chi^2 = 4.2, p > .05$

Table K6

Methods used to communicate between instructor and student by age

Response	Age				Total
	16 - 24	25 - 29	30 - 39	40 +	
Correspondence	36	43	81	32	192
Telephone	37	33	77	25	172
Face to face	25	29	51	19	124
E-mail	0	2	19	8	29
Fax	4	5	12	4	25
Teleconferencing	0	1	10	3	14
Videotapes	0	2	7	4	13
Telewriting	0	0	0	0	0
Other	0	0	0	0	0
Total	102	115	257	95	569

$\chi^2 = 27.12, p > .05$

Table K7

Student responses to the difficulty of a distance learning course as compared to an on-campus course by age

Response	Age				Total
	16 - 24	25 - 29	30 - 39	40 +	
Not very difficult	22	28	54	20	124
Slightly difficult	14	17	33	9	73
Somewhat difficult	7	2	10	7	26
Very difficult	1	0	2	2	5
Total	44	47	99	38	228

$\chi^2 = 9.145, p > .05$

Table K8

How adequate were the materials used in the distance learning course by age?

Response	Age				Total
	16 - 24	25 - 29	30 - 39	40 +	
Somewhat adeq.	23	27	47	20	117
Very adequate	16	20	43	14	93
Somewhat inadeq.	1	0	7	3	11
Very inadequate	4	0	2	1	7
Total	44	47	99	38	228

$\chi^2=12.477, p > .05$

Note: adeq. = adequate; Inadeq. = inadequate.

Table K9

Would students consider doing another course through distance at the college by age?

Response	Age				Total
	16 - 24	25 - 29	30 - 39	40+	
Yes	40	44	93	34	211
No	4	3	6	4	17
Total	44	47	99	38	228

$\chi^2=1.065, p > .05$

Table K10

Should the college continue to offer distance learning as a means of course delivery by age?

	Age				Total
	16 - 24	25 - 29	30 - 39	40 +	
Response					
Yes	43	47	95	36	221
No	1	0	4	2	7
Total	44	47	99	38	228

$\chi^2 = 2.4, p > .05$

Table K11

Student responses to the future direction of distance learning being offered at the college by age

Response	Age				Total
	16 - 24	25 - 29	30 - 39	40 +	
Some courses	25	31	56	19	131
Most courses	12	10	34	11	67
A few courses	6	6	9	6	27
No courses	1	0	0	2	3
Total	44	47	99	38	228

$\chi^2=10.848, p > .05$

Appendix L

Delphi Panel Questionnaire - Round #1 Results

Delphi Panel Questionnaire**Round #1****Question 1: CONVERGENT**

What has been your role in distance learning as a college administrator?

The consensus of college administrators were their role in distance learning is the initiation and development of courses.

Question 2: DIVERGENT

Think about the level of administrative staffing (secretaries and technical support) required for the operational aspects of distance learning courses at the campuses. At present, do you think that there is:

5 sufficient administrative staff at each campus for operational support

or

9 not a sufficient administrative staff at each campus for operational support

Question 3: DIVERGENT

What impact do you think distance learning will have on the employment of instructional staff?

Increased employment 5

Decreased employment 1

No change in employment 8

Question 4: CONVERGENT

Do you think instructors feel threatened by the concept of distance learning?

Yes 10 No 4

Why? Instructors view distance as: (a) reducing instructor ratios (potential job loss), (b) extending hours of work, and (c) suspension of campus programs

Question 5: CONVERGENT

What do you think is the level of acceptance of distance learning among administrators? (Please circle one answer only).

a) highly accepted 4

b) somewhat accepted 10

c) somewhat unaccepted 0

d) highly unaccepted 0

Question 6: CONVERGENT

What do you think is the level of acceptance of distance learning among instructors? (Please circle one answer only).

- a) highly accepted 0
- b) somewhat accepted 14
- c) somewhat unaccepted 0
- d) highly unaccepted 0

Question 7: CONVERGENT

What do you think is the level of acceptance of distance learning among students? (Please circle one answer only).

- a) highly accepted 0
- b) somewhat accepted 11
- c) somewhat unaccepted 3
- d) highly unaccepted 0

Technological Questions:**Question 8: CONVERGENT**

Can you please identify any problems that you think the public college will experience implementing courses by distance? (Please list as many as possible. You are not limited to the number of spaces provided).

- | | |
|----------------------------------|---------------------------------|
| 1) Technology difficulties | 5) Course development |
| 2) Financial problems | 6) Curriculum remaining current |
| 3) Support services for learners | 7) Competition |
| 4) Lack of PD for instructors | 8) Instructor resistance |

Question 9: CONVERGENT

Think about the kinds of technologies that the college can implement to offer distance learning. Can you please list the kinds of technologies that you see being implemented? (Please list as many as possible. You are not limited to the number of spaces provided).

- | | |
|----------------------|-------------------|
| 1) Web based | 5) Telephone |
| 2) Videoconferencing | 6) Correspondence |
| 3) Teleconferencing | 7) Fax |
| 4) E-mail | |

Question 10: DIVERGENT

How well do you think the quality of learning for distance students compares to the conventional method?

Better 2 Worse 2 Same 8

Extra comments about question 10 were: Depends on the development of the course, the support services in place and the use of distance for theoretical as opposed to practical courses.

Cost-effectiveness Questions:**Question 11: DIVERGENT**

Think about the cost of distance learning delivery for the public college. At present, do you think that delivery of courses by distance will be:

 8 more costly for the public college

or

 6 less costly for the public college?

Why? The following comment of one respondent captures the idea of why distance is more or less costly. "Initially, it will be higher cost because of curriculum development requirements and initial implementation costs.

However, once established it should result in less cost since all programs are more likely to be operating at capacity, thus generating more revenue."

Question 12: CONVERGENT

Think about the cost of distance learning delivery for the student. At present, do you think that delivery of courses by distance will be:

4 more costly for the student

or

10 less costly for the student?

Why? Less cost for travel and accommodations.

Question 13: CONVERGENT

In implementing distance learning one of the key issues to be addressed is cost-effectiveness. At present, how important do you think for college administrators is the issue of the cost-effectiveness in the decision-making of implementing distance learning at the campus level? (Please circle one answer only).

a) highly important 10

b) somewhat important 4

c) somewhat unimportant

d) highly unimportant 0

Future Questions:**Question 14: CONVERGENT**

What proportion of distance learning courses do you think should be offered by the public college:

 2 most courses by distance

 12 some courses by distance

 0 a few courses by distance

 0 no courses by distance

Question 15: CONVERGENT

In your view, how important is it that distance learning expand throughout the public college in the next five years?

(Please circle one answer only).

a) very important 13

b) somewhat important 1

c) somewhat unimportant 0

d) very unimportant 0

Question 16:**CONVERGENT**

How would you rate the likelihood of distance learning expanding throughout the public college in the next five years? (please circle one answer only).

- a) highly likely 14
- b) somewhat likely 0
- c) somewhat unlikely 0
- d) highly unlikely 0

Question 17:**DIVERGENT**

Think about distance learning five years from now. In your view, what proportion of courses of the college would likely be offered by distance:

- 3 0%-20% 7 21%-40% 2 41%-60%
2 61%-80% 0 81%-100%

Accessibility Questions:**Question 18:****CONVERGENT**

Do you think by offering courses through distance learning that the public college will increase accessibility for students?

- Yes 14 No 0

Question 19: DIVERGENT

What level of demand do you think exists for offering courses by distance through the public college system?

(Please circle one answer only).

- a) high demand 1
- b) moderate demand 7
- c) low demand 6
- d) no demand 0

Question 20: CONVERGENT

Think about the importance of accessibility of courses for students. How important for students do you think is the issue of accessibility of courses by distance?

- a) very important 4
- b) somewhat important 10
- c) somewhat unimportant
- d) very unimportant 0

Question 21: CONVERGENT

Assume for the moment that most all courses at the public college can be completed either on-campus or off-campus through distance learning. In your opinion, do you think that the college enrolment would shift from on-campus to off-campus:

- a) quickly 0
- b) moderately 3
- c) slowly 10
- d) remain unchanged 1

General Questions:**Question 22: CONVERGENT**

In general, what do you think should be the future direction of distance learning in the public college of Newfoundland and Labrador?

Accessibility is the key and distance will most likely become a popular medium of delivery for the college due to the demographics of the province.

One respondent best summarized this question when commenting:

“Distance learning is one delivery mode. It gives students an additional option thus increasing flexibility and accessibility. However, not all students will want to access programs via distance. There will still be need to offer programs through traditional approach.”

Question 23:**CONVERGENT**

Do you have any general comments that you would like to contribute concerning the public college and distance learning delivery of courses and/or problems?

Feedback is required from students and instructors on the process.

Distance can eliminate duplication of courses.

Distance learning is not for everyone. Works best with independent learners.

Distance learning is not restricted by the boundaries of provinces and countries. Therefore, competition will be high.

Attitude change in the college system about distance will be the greatest challenge.

Distance learning infrastructure must be organized and in place before proceeding to offer courses.

Cost of development and delivery may initially be high.

Thank-you for your time and cooperation.

Appendix M

Delphi Panel Questionnaire - Round #2 Results

Delphi Panel Questionnaire**Round # 2****Question 2: DIVERGENT**

Think about the level of administrative staffing (secretaries and technical support) required for the operational aspects of distance learning courses at the campuses. At present, do you think that there is:

 6 sufficient administrative staff at each campus for operational support

or

 8 not a sufficient administrative staff at each campus for operational support

Question 3: DIVERGENT

What impact do you think distance learning will have on the employment of instructional staff?

Increased employment 8

Decreased employment 0

No change in employment 6

Question 10: DIVERGENT

How well do you think the quality of learning for distance students compares to the conventional method?

Better 0 Worse 4 Same 8

Extra comments on this question were: development of courses; support services required and decisions concerning using distance learning for theoretical or practical courses.

Cost-effectiveness Questions:**Question 11: DIVERGENT**

Think about the cost of distance learning delivery for the public college. At present, do you think that delivery of courses by distance will be:

 9 more costly for the public college

or

 5 less costly for the public college?

Why? Initial start up costs will be high; the amount of time to develop courses and proper resources.

Question 17: DIVERGENT

Think about distance learning five years from now. In your view, what proportion of courses of the college would likely be offered by distance:

 3 0%-20% 5 21%-40% 4 41%-60%

 1 61%-80% 1 81%-100%

Question 19: DIVERGENT

What level of demand do you think exists for offering courses by distance through the public college system?

(Please circle one answer only).

a) high demand 1

b) moderate demand 9

c) low demand 4

d) no demand 0