



KILLICK CENTRE FOR E-LEARNING RESEARCH  
A COMMUNITY-UNIVERSITY RESEARCH ALLIANCE

**Participation of high school students in the isolated  
aboriginal communities of coastal Labrador in web-delivered  
learning**

**The current context:  
Perspectives, successes and challenges**

October 2008

David Philpott

Dennis Sharpe

Rose Neville

## **PREFACE**

This report contains the findings of phase one of what is anticipated to be a three or four year project into e-learning in selected Labrador coastal communities. In particular, it examines the context, successes and challenges associated with the delivery of senior high school courses offered through the Provincial Centre for Distance Learning and Innovation (CDLI) in five coastal communities.

We would like to acknowledge the excellent cooperation we have received from the many stakeholders associated with this phase of the project including the Labrador School District, CDLI personnel, the Nunatsiavut Government, the staff, students and administrators of the schools in the communities of Rigolet, Hopedale, Nain, Postville and Makkovik, and the parents of high school students engaged in CDLI courses in these schools.

This project is funded through the Social Sciences and Humanities Research Council of Canada Community University Research Alliance program.

David Philpott  
Dennis Sharpe  
Rose Neville

October 2008

## TABLE OF CONTENTS

PREFACE .....	i
EXECUTIVE SUMMARY.....	1
1. INTRODUCTION AND STUDY BACKGROUND.....	4
2. LITERATURE REVIEW.....	8
3. THE NEWFOUNDLAND AND LABRADOR CONTEXT .....	12
Table 1: Labrador participation in CDLI .....	14
4. POPULATION & STUDY DESIGN.....	17
Table 2: Community profiles.....	17
Table 3: Enrolments in CDLI courses for 2007-08.....	18
Table 4: Participants in study.....	18
Study Design .....	18
5. FINDINGS .....	20
Academic Outcomes .....	20
Table 5: Academic Outcomes (2007-08) .....	21
Focus Group and Interview Results.....	22
E-learning as an Essential Component .....	22
Success in E-learning.....	22
Developing Personal Skills .....	23
Teacher Support.....	24
CDLI Course Delivery Processes .....	24
Areas for Improvement .....	24
Table 6: Areas for Improvement .....	25
Organizational obstacles .....	25
Communication obstacles .....	27
Motivational obstacles .....	28
Contextual obstacles .....	29
6. SUMMARY & RECOMMENDATIONS .....	31
7. REFERENCES.....	34

## EXECUTIVE SUMMARY

As one of eight research projects in the Killick Centre, this particular study has established alliances with the Labrador School District (LSD), the Centre for Distance Learning and Innovation (CDLI), as well as the Nunatsiavut Government. Each of these partners is keenly interested in improving the effectiveness of e-learning opportunities for students enrolled in the unique context of the aboriginal communities of coastal Labrador. This is particularly important given the need for CDLI courses in remote areas of the province and the projected use and growth of this approach to the delivery of education. The overall intent of this particular Killick Centre project was the identification, development, implementation and evaluation of selected interventions that have the potential to improve the e-learning experiences of this group of students.

In this first phase, five coastal communities in Labrador were identified for the research site including: Postville, Nain, Rigolet, Hopedale and Makkovik, all of which have accessed CDLI courses and where a large population of Inuit reside. Each of the five sites was visited and individual interviews and/or focus groups conducted with students, educators and parents involved with web-based learning. A wealth of data emerged which affords an in-depth perspective on the success, challenges, and obstacles of e-learning for aboriginal students in this region.

Dominant to the findings was the importance of CDLI to quality education in coastal Labrador. Participants were clear in stating that this mode of delivery not only helps provide the basis for a quality academic program, but it also serves as a vital link with students to the rest of Labrador and the province as a whole. Given the shrinking population base in the province, and growing challenges to recruit qualified teachers to rural areas (especially in highly specialized subject areas), web-based learning is widely seen as being imperative in the Labrador region. Participants were also clear in stating that e-learning establishes an important avenue of communication and connection for these students with their provincial peers. Students reported being surprised and relieved to discover that they can achieve at commensurate levels with their provincial peers and that social connections are indeed fluid. The impact of this on career development, post-secondary planning and self-identity is significant.

Nonetheless, obstacles did emerge as potentially detrimental to the success of web-learning for these students. These can be grouped into the four main themes of organizational, communication, motivational and contextual challenges. Dominant to these concerns was the issue of on-site teacher supervision for students engaged in CDLI courses. Students, parents and educators all voiced the limited availability of supervision and support for these students who often have to work in either isolated spaces or areas where their ability to focus is compromised. As a result students felt that they had little support while educators felt that it was difficult to monitor what the students were actually doing while on-line. All felt that given the resources available, they were doing the best that they could, but were clear in stating that they simply were not enough to meet current demands. Students felt that on-site teachers were supportive but, at times, simply could not be available due to their schedules. Likewise, educators voiced concern for having to leave students unsupported and unsupervised, knowing that there is diversity in their ability to both work independently and manage the technology.

Despite these concerns, year end results identified that these students were remarkably successful in both completing their CDLI courses and in finishing their high school program. Twenty-two of 24 students graduated on time while one other student is awaiting a deferred exam. Moreover, the academic outcomes of these students in CDLI courses, though often diverse, were comparable with their provincial peers. In fact, at times they scored significantly higher than the provincial average. This raises questions for whether intervention needs to reflect a refinement of current initiatives rather than any large scale intervention. However, given that the study followed 35 students in five communities, concern exists as to whether these students are representative of all high school students in the region who might, at some point, need to become engaged in CDLI courses. This is underscored by the observation of some students that they were surprised to discover that they could compete with their provincial peers, once enrolled in CDLI courses. If this is indicative of self-perception in the area, is CDLI attracting only the more confident and more academically motivated students? This question, as well as others that surface in this study, are underscored by

the wide perception of the critical importance of CDLI in coastal Labrador, where shrinking enrollments and staffing challenges, necessitates that the delivery of even a basic high school program relies increasingly on the availability of web delivery. To that end, the following recommendations have the potential to strengthen the successful delivery of CDLI in the region.

This report recommends that:

1. Discussions be held between stakeholders to address the scheduling issues associated with time zone differences and individual school schedules.
2. Schools examine ways to improve on-site student supervision and the location of CDLI work stations.
3. Guidelines for school M-teams be re-established with the provision of in-servicing where necessary.
4. Discussions be held between stakeholders to address the issue of student access to online distractions while engaged in their CDLI courses.
5. CDLI and the Labrador School District collaborate to provide a consistent high level of bandwidth (internet connection) to all schools as well as onsite technical support.
6. The Labrador School District provide individual schools with increased financial support for needed CDLI course resources and teacher supervision.
7. A CDLI readiness course that includes the use of appropriate technology be developed and implemented at the intermediate level.
8. Stakeholders identify, articulate and develop the student personal attributes that can contribute to the successful completion of CDLI courses prior to enrolment in such courses.
9. An ongoing plan be established to strengthen communication between CDLI teachers and onsite teachers, CDLI teachers and parents, as well as communication between home and school.
10. A support committee be established with representation from CDLI schools, the Labrador School District and CDLI staff to monitor and support ongoing concerns related to student success.

## 1. INTRODUCTION AND STUDY BACKGROUND

### **Killick Centre**

The Killick Centre, through a Community-University Research Alliance (CURA) strives to foster innovative research, training, and the generation of new knowledge in the area of e-learning in the field of education, particularly as it relates to opportunities in rural, isolated areas. The focus is on K-12 students, with recognition of the importance of transition years (from secondary to post-secondary education.) The Killick Project for E-Learning Research is the administrative arm of the alliance and is located in Memorial University's G.A. Hickman Building (commonly referred to as the Education Building). The research supported by the Killick Project is broad in scope, and reflective of the priorities established through consultation in the alliance. Priorities will shift as new needs emerge through the life of this project. The Alliance has three main goals:

#### **Goal 1: Capacity Building**

Capacity for high-quality research in e-learning will be built through the creation of a community-university alliance in which partners work together as equal members in a research consortium. The co-operation required has the power to leverage true systemic change and build capacity of all the partners.

#### **Goal 2: Increasing the Amount of High Quality Research in E-Learning**

There is tremendous support from all educational stakeholders for this project, placing it in an excellent position to conduct ground-breaking research. MUN is committed to the training of new researchers, and in 2004, the Faculty of Education introduced a PhD program. CURA funding will provide means to attract students and develop strong leadership, facilitating the sharing of resources and expertise throughout the community, and increased opportunities for researchers and graduate students.

#### **Goal 3: More Effective Knowledge Exchange in E-Learning**

Systemic relationships will be created among the producers of new knowledge and the users of it, by developing an equal relationship

providing all stakeholders the opportunity to review and contribute to all aspects of the research, making the research relevant for community partners. Stakeholders will own the research and be in control of their own learning.

This aboriginal e-learning study is one of eight projects that are a part of the Killick Project.

### **Scope and Objectives of this Aboriginal Study**

The current delivery of selected web-based courses through the Newfoundland and Labrador (NL) provincial government's Centre for Distance Learning and Innovation (CDLI) to aboriginal communities in coastal Labrador has met with mixed success to date in terms of individual course completion and ultimately high school graduation. The potentially negative impact of this on participation in further education and/or the workforce is self-evident. The identification, development, implementation and evaluation of selected interventions that have the potential to improve e-learning experiences is possible over the five years of the CURA to help determine best practices that are sustainable by the communities involved. A particular focus on home (parent), community, and school-based support-based systems, in partnership with the Labrador School District, local school councils, CDLI, and the Nunatsiavut Government is appropriate. Also, given the recent governmental agreement on self-governance with the Labrador Inuit people, partnerships in this research are essential.

We envision a two phase, three year approach to collecting and disseminating knowledge through this project. This first phase (September 2007 to August 2008), upon which this report is based, is intended as an exploratory developmental phase with the appropriate partnering groups and stakeholders. Subsequent years and phases will evolve from this initial exploration through the identification of interventions to support e-learning and appropriate research designs to determine and track outcomes based on implementing such interventions.

## **Year 1 (2007-08) of Study – Developmental Phase**

This has been devoted to an exploration of feasible intervention options in collaboration with key partners and stakeholders, and has been done through

- A review of selected literature and current exemplary practices in North America.
- Consultations with the Nunatsiavut government and the Labrador school district.
- Interviews/focus group work with high school students, parents, teachers and administrators in Labrador.
- Consultations with CDLI personnel.
- Identifying determinants/measures of success.
- The analysis of school district, Department of Education and CDLI high school student data to plot program success and graduation rates.
- Outline a number of recommendations to potentially improve or strengthen student success in e-learning.

## **Years 2 and 3 (2008-10) of Study – Implementation and Evaluation of Interventions**

Details of this part of the study will be determined based on the nature of identified e-learning interventions and the support and cooperation of key partners and stakeholders. It will essentially involve selecting schools/students to receive the interventions (the experimental groups) and comparing their success with a similar sample representing a control group. A possible fourth year of study to track the impact of any interventions over time could be added later, but is not planned or budgeted at this time.

## **Expected Outcomes**

This project will contextualize these issues to the aboriginal communities of coastal Labrador and examine the effectiveness of web-based learning opportunities as a strategy in redressing these concerns. Specifically, it will:

- Identify the need for broader learning opportunities among these students.
- Articulate factors that enhance or impede the success of e-learning in these communities.
- Examine the perspectives of students, educators and parents on current educational opportunities.

- Foster a dialogue on improving educational outcomes and enhancing career transitions for aboriginal students in coastal Labrador communities.
- Implement and monitor identified interventions for enhancing educational outcomes of e-learning courses.
- Provide insight into the effectiveness of web-based learning in enhancing the quality of education for aboriginal students in rural contexts.

## 2. LITERATURE REVIEW

Concern for educational outcomes among Canada's aboriginal students is well documented in this country and has been echoed by The Council of Ministers of Education (2004):

There is recognition in all educational jurisdictions that the achievement rates of aboriginal children, including the completion of secondary school, must be improved. Studies have shown that some of the factors contributing to this low level of academic achievement are that aboriginals in Canada have the lowest income and thus the highest rates of poverty, the highest rate of drop-outs from formal education, and the lowest health indicators of any group. (p. 22)

Likewise, The Office of the Auditor General (2004) questioned the effectiveness of current interventions by stating, "we remain concerned that a significant education gap exists between First Nations people living on reserves and the Canadian population as a whole, and that the timeframe estimated to close this gap has increased slightly from about 27 to 28 years" (Sect.5.2). Given Canada's shifting demographic base and a trend towards greater cultural diversity, these concerns become more significant. The 2001 census reported that over 100 languages are being spoken in this country while 2005 statistics identifies that "...roughly one out of every five people in Canada, or between 19% and 23% of the nation's population, could be a member of a visible minority by 2017 " (p.6). This growth includes a sevenfold increase in the aboriginal population in the last 50 years while the non-aboriginal population has only doubled. Furthermore, this growth will continue at an annual rate more than twice that for the general population.

More pertinent to the field of education is the age of this population growth as "...projections show that the median age of the visible minority population would be an estimated 35.5 years in 2017. . . . in contrast, the median age of the rest of the population would be 43.4" (Statistics Canada, 2005, p. 7). Secondary schools will witness this growth more quickly and will be faced with the challenges of culturally appropriate curriculum and modes of successful delivery.

One initiative that is increasingly identified in attempting to address such low achievement and limited educational opportunities to aboriginal and rural students is e-learning (Cummins & Sayers, 1995; Dillon & Cintron, 1997; Mood, 1995; Rossman & Rossman, 1995; Sanchez, Stuckey & Morris, 1998). In exploring Canadian opportunities for distance education to aboriginal communities, Downing (2002) discusses what has become known as the “digital divide” where such technology is not readily available to, or used by many of, these communities. He cites a 2001 Indian and Northern Affairs Canada study which concluded that “less than 7% of aboriginal communities in Manitoba, Nunavut, British Columbia and Saskatchewan has access to high speed internet” (p.8). However, a 2005 report by Statistics Canada on the availability of computers in First Nations schools concluded that “an overwhelming 91% of responding First Nations schools used broadband technologies to access the internet, satellite connection being the most popular method for more than half” (p. 29). That report went on to conclude that the use of technology to enhance learning was sabotaged by a lack of training and skills among teachers on how to incorporate the technology into lesson plans. This reflects the findings of an earlier study by the Government of British Columbia (2001) who examined this divide in greater detail. That report identified that “...there are still significant impediments to First Nation’s ability to take full advantage of the benefits of information technology, including:

- Lack of public access sites on reserves
- A relatively small number of homes with internet connections
- A lack of culturally relevant content
- Lower than average literacy rates, and
- A lack of computer skills and socially relevant internet training programs.

(p.3)

Daniels (2004) conducted a more in-depth examination of indigenous peoples’ perspectives on distance learning opportunities in the Northwest Territories and concluded growing interest in student’s interest in this mode of instruction. He stated that:

...students are accessing an increased number of academic courses which have more rigorous requirements and longer duration. Smaller high schools are taking advantage of online course delivery. This is probably

due to the fact that low numbers of high school students in remote schools means that the teaching compliment for those schools could be limited to one or two secondary teachers. (p. 2)

Gruber and Coldevin (1995), in supporting the use of distance learning to enhance outcomes among Canada's aboriginal population, outlined five essential and useful guidelines to making it successful. These included: 1. Support of the band council and the local community; 2. The identification of qualified on-site facilitators, or persons willing to undergo appropriate training; 3. Adapting the course materials to the specific needs and context of the aboriginal community; 4. Creating a safe and comfortable learning environment; and 5. Harmonized course schedules with activities in the local community.

The utility of distance learning has mushroomed across the country with a growing number of regions recognizing it's usefulness for aboriginal contexts (Coldevin, 1995; Daniels, 2004; Downing, 2002; Fiddler, 1992; Gruber, Greenall & Loizides, 2001; Jewison, 1995). The Government of Nunavut (2005), after reviewing the literature and current models, establishes a more recent context for the use of e-learning in rural aboriginal schools. It concludes that e-learning is:

... a means of bridging distances, of providing quality instruction for all students...a means to assist teachers in improving instructional practices and of gaining needed skills. Finally, it should and can be a means of creating communities of inquiry which suit the needs of Nunavut learners... (p. 40)

It is important to note, however, that not all learners may be suited to the online learning environment. As Kearsley (2000) explains, "learning online is much different than learning in a traditional classroom" (p. 62) with one of the most significant differences being the increased learner autonomy in the virtual learning environment. A review of the literature reveals a number of critical factors for the successful online learner. Meyer (2003) and others (Alberta Distance Learning Centre, n.d.; Crouch & Montecino, 1997; Cuthell, 2002; Downs & Moller, 1999; Flanigan, 2000; Hughes, 2004; Mulcahy, 2002) suggest success in online courses is heavily influenced by what the

students bring to the learning environment. Evidence supports the claim that visual, independent learners are more likely to be successful in online learning than aural, dependent, more passive learners (Meyer, 2003). The same sentiments are echoed in the work of other researchers who maintain that successful online learners need to be independent, highly motivated, organized and have good time management skills (Crouch & Montecino, 1997; Cuthell, 2002; Downs & Moller, 1999; Flanigan, 2000; Mulcahy, 2002). Moreover, given the heavy reliance on computer-based technology for access to materials, learners with strong computer literacy skills are viewed as having an edge in the virtual world (American Center for the Study of Distance Education, 1999). While a large portion of the research on learner characteristics has involved online university courses, one could easily conclude that these critical factors are even more important when implementing such courses with learners in secondary school.

### 3. THE NEWFOUNDLAND AND LABRADOR CONTEXT

In Labrador, concern for educational achievement in that region has also been well identified, given the large and diverse aboriginal population and the isolation of many of the schools. In 2007, there were 4190 students enrolled in 16 schools, down from 2000 in which there were 5273 students in 19 schools, and down dramatically from 1990 when there was 7563 students in 40 schools (Department of Education, 1990, 2000, 2007). This population is also the most culturally and linguistically diverse in the province with at least three separate aboriginal groups in Labrador (Innu, Inuit, Metis) spread among equally diverse and often small, isolated communities.

Education Statistics (Government of NL, 2000, 2007) consistently places the region in the lower performance ranges across subject areas in comparison to their provincial counterparts. In 2003 the *International Adult Literacy and Skills Survey* placed the region below the national average in all areas of literacy (Statistics Canada, 2003a). More recently, the 2007 *Program for International Student Assessment (PISA)*, (Statistics Canada, 2006) identifies NL and, in particular rural and aboriginal students, as continuing to consistently perform below average ranges in achievement. Data also links lower literacy levels with unemployment, underemployment and low income – fueling a cycle that becomes difficult to break (Statistics Canada, 2003b).

An in-depth report on the educational needs of the Innu of Labrador, neighbors of the Inuit, affords a concerning picture. Philpott, Nesbit, Cahill and Jeffery (2004) raised significant concern for alarming rates of attendance, achievement and graduation among those people. Their report identified that despite having average cognitive ability, one third of Innu youth does not attend school at all and those who do begin dropping out in primary school with overall attendance rates at approximately 50%. Achievement is equally disturbing in that “56% of seven year olds are one to two years behind and 100% of 15 year olds are at least five years behind” (Philpott et al., 2004, p.15).

While the results of the Innu study may be an extreme, it does contextualize the magnitude of the struggles facing the delivery of education in such a region. Indeed, it is the wide recognition of concern for the educational outcomes of Labrador’s aboriginal communities in general that were factors that led, in part, to the establishment of the

Killick Centre. The Labrador School District has long recognized the importance of web-learning as a means to not only provide a diverse program of studies for their students in rural areas, but increasingly essential in affording even basic program options (Dr. B. Vey, personal communication, May 2, 2007). This concern for limited opportunities for rural schools in Canada as a whole was discussed by Eggertson (2007): “rural schools tend to provide more limited resources to schools than better-resourced urban schools. Rural schools often have difficulty offering a wide range of courses, and experienced and well-trained teachers. There are fewer advanced classes and classes for students with special needs” (p. 7). She goes on to support Vey’s contention of the important role that distance learning serves in this context:

Distance education and sharing of support services for students with special academic, physical and psychological needs can help to meet these challenges in rural communities. Improved information and communication infrastructures are vital to both of those initiatives. (p. 8)

In NL, the use of high school web-based learning is relatively new having started as a pilot in 10 schools within one district in 2001 and since grown to where 39 courses are now offered to students across the province with 1498 individual course registrations during the 2007-08 school year. Today, CDLI provides the opportunity for students who live in rural or remote areas to take courses required to fulfill high school educational requirements as well as the option to take elective courses not normally offered in their school. As a consequence, a large group of NL students graduate from schools in rural settings where a growing portion of their high school experience involves distance-delivered CDLI e-courses.

The projected enrolment for 2008-2009 will be 1750 enrolments. Within the Labrador region 29 courses are being selected by students with approximately 157 individual registrations. Table 1 reflects the Labrador enrolment in individual high school courses for the last four years. Of the 29 courses listed, many are essential graduation requirements for an academic certificate, especially in the core areas of Math, English, World Studies and Sciences. Additionally, it remains difficult for students in some of the

communities involved in this project (e.g. Rigolet) to obtain even a basic graduation requirement without availing of the CDLI experience.

**Table 1: Labrador participation in CDLI**

High School Course	2008	2007	2006	2005
Math 1204	1	9	7	2
Academic math 2204	11	8	7	0
Academic math 3013-1	1	4	2	11
Academic math 3013-2	2	0	0	11
Academic math 3013-3	4	1	0	11
Academic math 3204	15	5	5	5
Advanced math 2205	4	1	1	1
Advanced math 3205	2	0	2	0
Advanced math 3207	0	1	1	0
Art and design 3200	0	0	1	1
Art technologies 1201	8	10	13	17
Biology 2201	16	1	2	2
Biology 3201	7	7	11	5
Canadian economy 2203	0	5	6	8
Career development 2201	0	0	8	8

<b>High School Course</b>	<b>2008</b>	<b>2007</b>	<b>2006</b>	<b>2005</b>
Chemistry 2202	1	3	5	11
Chemistry 3202	6	3	7	2
Communications technology 2104-3104	3	14	13	7
Design and fabrication 2212	11	3	0	0
English 2201	13	9	1	0
English 3201	15	6	12	13
English 1201	5	2	0	0
Enterprise education 3205	0	0	1	5
Experiencing music 2200	3	7	6	1
French 2200	3	0	2	0
French 3200	0	0	0	2
French 3201	0	0	0	0
Healthy living 1200	0	8	0	0
Integrated systems 1205	0	5	1	7
Physics 2204	2	2	3	0
Physics 3204	1	1	0	0
Science 1206	5	11	18	2
NL studies 2215	8	1	0	0

<b>High School Course</b>	<b>2008</b>	<b>2007</b>	<b>2006</b>	<b>2005</b>
Canadian history 1201	0	1	8	4
World geography 3202	5	4	6	2
World history 3201	5	2	1	0
Writing 2203	22	13	10	17
<b>Total</b>	<b>152</b>	<b>147</b>	<b>160</b>	<b>155</b>

Source: CDLI, Government of NL, 2008.

#### 4. POPULATION & STUDY DESIGN

Through our established alliances with CDLI, the Nunatsiavut government and the Labrador School District the project team identified five communities where web-based courses are being used in the delivery of high school programs for students. While we acknowledge the wide use of web courses in Labrador schools, the focus of this study was specific to coastal community schools with high aboriginal populations. Limited resources for the study resulted in five schools being selected for participation. Subsequently the communities of Postville, Nain, Rigolet, Hopedale and Makkovik, all of which have predominantly Inuit populations, were selected. Table 2 presents the population profile of these communities.

**Table 2: Community profiles**

	Population	Population change since 2001	% Aboriginal	High school enrolment 2007/2008	Projected graduates 2007/2008	Actual graduates 2007/2008
Nain	1034	-10.8%	92%	83	7	7
Makkovik	362	-5.7%	88%	28	8	7*
Hopedale	530	-6%	89.6%	33	2	1
Rigolet	269	-15.1%	94.3%	11	2	2
Postville	219	1.9%	91%	16	5	5
<b>Total</b>	<b>2414</b>			171	24	22

\* 1 student writing deferred exam in Fall

Source: Statistics Canada 2007 and Labrador School District.

In these five communities during the 2007/08 school year, of the total high school enrolment, 35 students were completing 93 course enrolments (total number of individual registrations in web-based courses). Thus, on average, high school students in most of these communities take 2-3 CDLI courses, however that number can be as

high as 6 CDLI courses for some students in certain communities. In the greater Labrador region there were 29 different high school courses being accessed via web-format while there was a total of 39 web courses available in the province as a whole.

Table 3 presents this breakdown:

**Table 3: Enrolments in CDLI courses for 2007-08**

	#of Web courses as of Sept/07	# of Students Sept/07	Total course enrolments In Sept/07	# of students June/08	Total course enrolments in June/08
Province	39	1004	1781		
Labrador	29	76	161		
Postville	6	12	24	12	23
Nain	6	4	7	4	7
Rigolet	17	10	42	8	30
Hopedale	2	1	2	0	0
Makkovik	9	8	17	7	16

Source: CDLI (As of June 27, 2008).

Key informants for this project were identified as teachers, school administrators, parents, and students from those five communities who are directly involved in these CDLI courses. Letters of introduction and consent forms were sent outlining that participation was completely voluntary. Table 4 presents the participation rate. In addition, an interview was held with a Labrador School District program specialist (included with administrators) directly involved with CDLI in these communities.

**Table 4: Participants in study**

	Participated	Possible	Return rate
Students	25	35	72%
Administrators	6	6	100%
Parents	16	35	46%
Teachers	9	9	100%

## Study Design

The purpose of the project was to examine the perspectives of students, educators and parents currently involved with web-based courses in these aboriginal communities. A qualitative approach to data collection was utilized in which a combination of individual interviews and focus groups were held with the key-informants. Ethics approval was received and signed consent was obtained. Letters of Introduction were forwarded to potential participants. Each group of informants (students, teachers, parents, administrators) was treated as a separate group during focus groups and strict confidentiality was maintained. No person, group or community was identified in the study results.

In total, 29 individual interviews and 6 focus groups were conducted in the five communities during the Fall of 2007. Participants were eager to discuss their experiences with CDLI courses and spoke with candour about their perspectives on this mode of delivery. All participants were comfortable with being audio-taped and voiced appreciation that their opinions were being sought.

A research assistant familiar with and known in these communities became involved with the project and visited each group to conduct the data collection. Sessions were audio-taped and field notes were maintained. All recordings were subsequently transcribed and analyzed using a grounded theory approach to identifying emergent themes.

Given that this study was conducted over a complete school year (2007-2008) the researchers were able to determine student performance in the CDLI courses. Final marks for each student in these courses were collected and compared to the average provincial mark for that course. In addition, school administrators were interviewed about their perceptions of student performance with particular attention to whether or not performance in CDLI differed from on-site courses. A wealth of data emerged which provided insight into the reality of CDLI based e-learning in these communities, the needs of the students, and the perspectives of all involved in this mode of curriculum delivery.

## 5. FINDINGS

### Academic Outcomes

Year end results for the CDLI courses were collected and analyzed (Table 5). While Table 2 reported a 92+% graduation rate for these students (with one pending a deferred exam), the data in this table affords an indication of how the students in this study performed in their courses in comparison with the provincial student average. Provincial averages (CDLI and on site courses) are outlined, as are CDLI-only averages and the average mark for the students involved in this study. Year-end averages are not available for courses that did not feature public exams. The table does not present, due to confidentiality concerns, any individual student marks which often ranged widely in many of the subject areas. Interpretation of this data should, therefore, be done with great caution.

Overall, the CDLI course results of the students in this study were encouraging when compared to Provincial averages. In about half of the courses the study group average was higher, however, as mentioned earlier, the range of marks in individual courses was often wide: see for example Math 3204 where the marks ranged from 39% to 93%.

In addition to the final marks, some educators in each of these five schools were asked about their perception of student performance in the CDLI course in relation to their non-CDLI courses. Respondents were very quick to identify that many factors impacted on how a student performs during a school year, regardless of mode of delivery. They were quick to identify the issues that have long been identified in this Labrador region including poor attendance, social and personal challenges, student motivation, and time management skills. However, the general consensus was that students tended to do as well in the CDLI course as in their other courses, though one respondent indicated a tendency towards CDLI marks being slightly lower. They all reiterated what had been reported in the initial interviews with respect to factors that promote success for these students in CDLI courses. These are discussed in the following sections of the report.

**Table 5: Academic Outcomes (2007-08)**

CDLI Course	Provincial Average	Average mark in CDLI version	Study Population Average	Difference from provincial average	Range of marks in the study
Math 1204	66.1		55	-11.1	30-67
Math 2204	61.6		52.1	-9.5	36-89
Math 2205	78		76	-2	n/a
Math 3204	61.1	63.5	63.7	+2.6	39-93
Math 3103	67.7		54	-13.7	50-60
Math 3207	78.3		90	+11.7	n/a
English 1201	67.1		61.5	-5.6	55-68
English 2201	61.5		65.3	+3.8	42-90
English 3201	66.8	65.7	56	-10.8	n/a
Writing 2203	66.6		63.7	-2.9	54-74
Science 1206	60.3		52.2	-8.1	40-65
Chemistry 2202	71.8		55	-16.8	n/a
Chemistry 3202	69.0	71.1	89	+20	n/a
Physics 2204	69.1		76	+6.9	n/a
Physics 3204	71.3	72.7	*		n/a
Biology 3201	64.3	64	80	+15.7	65-95
Canadian History 1201	70.9		88	+17.1	n/a
World History 3201	67.3	80.9	86.5	+19.2	83-90
World Geography 3202	67.3	69.6	70.7	+3.4	68-75
Design and Fabrication 2212	72		83	+11	71-91
Communications Technology 2104/3104	73.1		72.3	-0.8	55-91
Experiencing Music 2200	74.5		73.7	-0.8	52-89
Integrated Systems 1205	70.1		65.5	-4.6	50-76

\* Deferred exam. Note: Based on available data as of October 8, 2008.

## **Focus Group and Interview Results**

The results of the focus group and the interview data gathered from students, parents and educators are described under the thematic headings that emerged from the analyzes. It is interesting to note that participants valued this opportunity to participate in the project and voiced appreciation that their opinions were being sought.

## **E-learning as an Essential Component**

Overwhelmingly, the dominant theme that emerged from the data was wide spread recognition of the critical importance of e-learning in these communities. All participants -- students, educators and parents, voiced appreciation that this mode of instruction was available to students, viewing it as an opportunity to receive a level and range of education which would not otherwise be available to them. Students were quick to note that *"CDLI courses are essential for career opportunities and particularly if you are interested in a career that is science-oriented like becoming a pilot."* As one parent indicated, *"without CDLI, students would never be able to get the prerequisites needed for future studies such as medical school."* Similarly, as one educator noted, *"students are able to do courses they would not be able to do onsite, either because of teacher allocation issues in the school or because the school does not have a specialist in that subject area on staff."* Participants were aware of the challenges that the Labrador School District faces in delivering quality academic programs to rural schools, with low enrolment and with systemic struggles to recruit teachers. As one educator explained, *"attracting qualified specialist teachers to a small, northern, remote, fly-in, aboriginal community can be a challenge."* They were also aware of achievement issues and perceived readiness skills to compete in high school courses. Nonetheless, they were unanimous in recognizing e-learning as an essential component of the student educational experience.

## **Success in E-learning**

A theme that emerged early was a sense of surprise and relief that these students were able to meet with academic success in these courses and compete with

their provincial counterparts. Parents and students in particular voiced a sense of surprise that students had the scholastic skills to meet the curriculum outcomes as well as converse and contribute to the interactions with their provincial peers. As one student indicated, *"it helps build self-esteem when you succeed in a CDLI course since you are compared with students around the province and not just in your small community."* They reported a perception that academic standings in these communities are much lower and that their ability to meet with success in wider academic areas was limited. This was particularly challenging in Grade 10 when confidence was boosted as students participated in the CDLI courses. This heightened confidence was linked, in part, to the realization that academic performance was being measured by specialist teachers in a provincial context. As a result of this success, students felt that more post-secondary options were open to them and that they would experience a similar level of success. Such positive self-perception is important as students develop future career plans.

### **Developing Personal Skills**

While the academic value of CDLI courses was widely recognized so too were the personal skills that it fostered. Participants felt that along with boosting academic confidence, the experience fostered communication and leadership skills. Improved skills in time management, computer literacy, collaboration, independence, and an enhanced work ethic were also identified as additional benefits of the CDLI experience. As one student explained, *"CDLI courses help build independence and a sense of responsibility."* Educators in particular, saw this transfer of skill to their onsite courses and were particularly pleased to see CDLI grades correlate with onsite grades. They reported this as validating the quality of their instruction and grading techniques. An additional benefit was the time it afforded them to work with onsite students who needed more individualized instruction and support – outlining that all students in the community benefited from the presence of CDLI. As one educator added, *"CDLI courses enhance onsite teaching since teachers can see how online teachers are approaching various topics and as such are particularly helpful for new teachers as a resource."*

## **Teacher Support**

The CDLI teachers themselves were widely seen as being central to the success that these students encountered. "*Excellence*" was a descriptor that was widely used to describe these instructors and the CDLI structure as a whole. Their teachers were seen as being patient, readily available, clear and knowledgeable of their subject areas and effective in their methodology. Some students noted in particular they "*liked how the online teachers interact with the students online.*" Participants were especially appreciative of being able to fax, email or telephone the instructors themselves as it established an enhanced sense of personal connection and reassurance. Given the initial trepidation of engaging in CDLI courses, this personal connectivity is clearly an essential component for success of students from these communities.

## **CDLI Course Delivery Processes**

The CDLI structure, with recorded classes, ready access from any computer site, tutorials, worksheets, help desk, performance alerts, online notes, etc. were also named as being features that were beneficial to these students. Some students even highlighted the benefits of CDLI courses for shy students "*since you can ask questions privately without having to ask them in front of the class.*" Given the rural nature of life in this region, delays experienced in travel, weather, cultural/community events, this structure seemed particularly well suited for these communities. One student noted this feature "*was particularly useful when travelling for sports*".

## **Areas for Improvement**

Despite their very positive perspective with e-learning, participants were eager to outline areas where the service could be improved. Organizational, communication, motivational and contextual areas for improvement were identified. A summary of these are displayed in Table 6.

**Table 6: Areas for Improvement**

<b>Organizational</b>	<b>Communication</b>	<b>Motivational</b>	<b>Contextual</b>
Improve scheduling	Improve communication between CDLI teachers and parents	Improve student readiness skills for CDLI courses	Consider alternate space for CDLI room in schools
Improve onsite supervision	Improve communication between parents and school	Identify and communicate student attributes for success in CDLI courses	Improve technical support
Limit student access to Facebook, etc.	Improve communication between CDLI teachers and students	Improve design of CDLI courses so they are less text-based	Provision of specialist supports for these schools
Increase financial support for CDLI courses in school to purchase materials, photocopying, etc.	Improve communication between CDLI teachers and M team		Provide support for social and emotional issues that may be affecting student success in CDLI courses
Improve onsite technical support			

### **Organizational obstacles**

While participants were quick to name recent improvements in technology and access, there remained a number of logistical issues that complicated the delivery of CDLI courses. One was the half hour time difference between the island and Labrador. Many CDLI courses follow the provincial time zone which often results in a clash with the school schedule which follows the Labrador zone. As a result many CDLI courses were starting on the half hour in these schools, midway through regular CDLI class periods. As one student pointed out, *“as a result of time clashes, we have had to miss homeroom or parts of onsite classes in order to attend CDLI classes or we have had to miss CDLI in order to go to onsite class”*. Some schools have made adjustments to their school schedule to be in line with the CDLI schedule (lunch period; school start and end times; etc.), however, this did not appear consistent across schools. This time difference issue was viewed as a major obstacle to student participation and success in CDLI courses since it required students to listen to the recorded class of what they had missed and to try to understand that portion of the class largely on their own (while

CDLI teachers were sometimes available to answer questions after class, this was not always the case since they might have to go to another class). It is important to note that there have been some attempts to rectify this problem by adding Labrador time slots (only students from Labrador participate in these course slots), however, it was viewed that there was still much need for increased numbers of these time slots.

One of the most significant organizational issues identified by all participants was the lack of onsite supervision in CDLI courses. Even students noted “*there was little supervision onsite and they could get easily distracted because of this*”. As one parent indicated, “*since there is no supervisor to monitor student behaviour, students can get distracted by others in the CDLI room because they are fooling around or talking*”. This lack of supervision often also makes it easier for students to access Facebook, MSN, and other such sites when they should be working. Many indicated that the supervision issue was a result of school teacher allocations. Teachers report full teaching schedules which limits their ability to be available to assist and/or monitor student work in the CDLI class. Similarly, administrators in these small schools are often juggling administrative duties and teaching duties making it extremely difficult to take on the added responsibility of overseeing CDLI. Simply put, educators explained, “*schools do not have the bodies to cover off supervising CDLI and teach all the courses that have to be taught onsite*”. As one administrator explained, “*the administrator in the office often becomes the supervisor by default*”. This is particularly burdensome for coastal administrators who often have numerous duties. As one stated: “*four of the five class periods students have CDLI classes, so you are trying to monitor their classes while teaching your own, while balancing administrative duties*”. Overwhelmingly, educators noted the enormous amount of school personnel time involved in trying to support the CDLI program on site (supervision; set up labs; provide onsite support for students having difficulties with questions, etc; register students; set up passwords; show students how to log on and use the system; download tests; copy tests; organize supervision of tests; scan tests; provide technical support (technician is shared between coastal communities); notify CDLI teachers of school closures; notify CDLI teachers when marks are due; collect marks; record marks; photocopy marks; etc.. In an effort to

provide some onsite supervision, CDLI computers most often are strategically placed in a space where they can be monitored by a school staff member doing other duties (e.g., teaching an onsite class) or near the main office so that the administration and/or the school secretary can keep an eye on the students. If the web is down, a lack of supervision becomes additionally problematic in that these students are free to wander or engage in activities of which the school may not be aware.

Another issue noted was the lack of financial support for the schools to offer CDLI courses when it comes to things such as supplying paper and toner for CDLI printing as well special equipment that might be required for some courses (e.g., special biology slides).

While online access was reported as having improved, participants did report struggles with continuous access and the fact that CDLI courses move on whether Labrador is connected or not. Educators explained that sometimes technology support issues can arise particularly in September when schools are attempting to get systems up and running since there is only one technician for the coastal schools. Weather closures were noted as particularly challenging. While the online notes and recordings of classes were helpful, it often results in extra pressure on the student to make up lost time.

### **Communication obstacles**

Sharing information about CDLI course opportunities, demands, structure and progress was named as an obstacle between home and school. Many parents in particular voiced frustration with the effectiveness of communication structures, that they felt unaware of their child's progress or performance and ways in which they could support their child in the CDLI experience. Parents felt that the school needed to enhance communication with them and that methods should be established where they could connect with the E-teacher, despite limited levels of technology awareness. For many parents, they had never had a parent-teacher interview with their child's CDLI teachers. As one parent indicated, "*there is very little information provided for parents from CDLI teachers. We have to rely on the kids for information or during parent*

*information night at school we might ask the principal or other teachers onsite who may be involved with the program, but other than that we get nothing. There are no emails from the CDLI teachers.* Even students noted they “did not believe parents are very informed about CDLI”. While some students did think there was a night hosted last year when parents could log into CDLI, students indicated there were no parent-teacher interviews with online teachers.

The students themselves voiced struggles with communication in that they were sometimes frustrated by the long wait-times to receive a response regarding a question versus the relatively short period of time that would be experienced in a face-to-face environment. Furthermore, as one student concluded, *“it is difficult to explain certain things via email, math, for example, and so often we go to a teacher onsite for help”*. Furthermore, students added that they were aware that a guidance counsellor was available online, but few knew what the role of this person was.

The onsite support team also felt that communication with CDLI could be enhanced so that they had ongoing awareness of the demands and expectations related to CDLI courses as well as being kept up to date with student progress. This breakdown in communication with onsite teachers was particularly troublesome when students needed a “face-to-face” support/consultation. Not to minimize the helpfulness of e-teachers, participants did report that at times students needed more individualized support and or direct involvement of a teacher and that onsite teachers were not aware of what was happening. Moreover, educators felt that at times there were expectations placed on them which they had little awareness of (e.g., finding out about upcoming labs from students) or were unrealistic given the many demands placed on them in the school. Educators felt they could be much more effective coaches and supporters of students if there was more communication between CDLI and the school.

### **Motivational obstacles**

Building on the confidence issues that students face when first enrolling in CDLI courses, there was significant concern expressed among all participants for the readiness of students to take e-courses. Computer literacy and technology awareness

is particularly problematic in that students are assumed to have a high level of skill required at the start of these courses. As one parent indicated, “*CDLI teachers sometimes make assumptions that students know how to use all the equipment.*” While students are very individual in their skill set, a lack of supervision, limited access for support on site, fragile confidence to begin with, and sometimes unappealing course designs (sometimes too text-based) frustrates and disengages new students early in this new experience.

Likewise, participants felt that CDLI courses are better suited for students who have strong work ethics, can manage time effectively and are highly focused and resilient to frustration. As one student noted, “*you got to have enough determination not to surf the net during offline and online time.*” There is a perceived assumption that all successful participants have these skills and are being diligent in their self monitoring, especially in an absence of supervision. This is exacerbated in the aboriginal context where cultural values of non-directive parenting, resistance to ask for help, and reluctance to be viewed as struggling typify these students.

Participants recognized that while CDLI is an excellent experience and opportunity, it is a lot of work for the student in a much more independent context than onsite courses. Many felt that students were not ready for this and were not fully prepared prior to high school start. The confidence, esteem and skills required to start CDLI courses were widely seen as needing to be addressed at the intermediate level.

### **Contextual obstacles**

Finally, there were a number of concerns specific to the realities of these communities that were identified as complicating the CDLI experience. Limited space in schools, limited bandwidth, limited ability to assist students in specialty courses and difficulties of aboriginal populations to succeed given social and emotional issues were some of the issues identified. All the schools have had to adapt their learning space to accommodate CDLI. For some this means having CDLI students in the office area so that the administration can supervise students, while others have taken their library and made it the CDLI room which pretty much limits the use of the library as it was intended

by the school community. Yet other schools have been able to allocate a specific room for CDLI. With respect to bandwidth, while connectivity has improved in recent years in these communities, there are still times when it can be an issue. Not having a qualified teacher onsite to assist students with specialist courses is particularly problematic. In many of these schools, they may not have someone on staff who is able to assist with the labs particularly in chemistry and physics. Furthermore, success in CDLI courses is sometimes complicated due to family environments where education may not be a priority and in addition, students are dealing with social and emotional issues.

## 6. SUMMARY & RECOMMENDATIONS

There is little doubt that distance delivered courses utilizing e-learning present unique challenges to the Provincial education system, especially those in the rural isolated communities of coastal Labrador. Our specific study of such schools with predominantly aboriginal student populations revealed many current successes in terms of course completion and marks achieved. However, there were obviously a range of successes with respect to student course marks, some of which were close to failing grades. The critical importance of CDLI courses in these communities was also very evident and all stakeholders associated with the school system (including parents) appreciated the opportunity afforded by CDLI course availability. The benefits to the needs of both the students for their respective programs and the school district to be able to deliver appropriate and needed senior high school courses are self evident. Success in these courses has helped to build student confidence in their academic ability to compete with their provincial counterparts as well as help strengthen their personal work and study attributes that will benefit them as they continue on their career development pathways. However, as with many aspects of the educational system, there may be ways to improve on current successes, particularly for students who achieved relatively low final marks in their courses. An added benefit might well be enhanced attendance and school completion.

There were a number of organizational and logistical issues related to ongoing course delivery both within individual schools and Labrador as a whole. Many of these are related to the half-hour time difference in Labrador, school schedules, student supervision, the location of CDLI work stations, on-line distractions, and the quality and consistency of internet connections.

**Recommendation 1:** That discussions be held between stakeholders to address the scheduling issues associated with time zone differences and individual school schedules.

**Recommendation 2:** That schools examine ways to improve on-site student supervision and the location of CDLI work stations.

- Recommendation 3:** That guidelines for school M-teams be re-established with the provision of in-servicing where necessary.
- Recommendation 4:** That discussions be held between stakeholders to address the issue of student access to online distractions while engaged in their CDLI courses.
- Recommendation 5:** That CDLI and the Labrador School District collaborate to provide a consistent high level of bandwidth (internet connection) to all schools as well as onsite technical support.
- Recommendation 6:** That the Labrador School District provide individual schools with increased financial support for needed CDLI course resources and teacher supervision.

Another area for development concerns student preparation for CDLI courses prior to attending senior high school. Not all students have the pre-requisite personal study and motivational attributes as well as the technical skills necessary for success in an e-learning environment. A number of these however, could be developed as students' progress through the middle school grades, years during which risk of drop-out increases dramatically.

- Recommendation 7:** That a CDLI readiness course that includes the use of appropriate technology be developed and implemented at the intermediate level.
- Recommendation 8:** That stakeholders identify, articulate and develop the student personal attributes that can contribute to the successful completion of CDLI courses prior to enrolment in such courses.

Improved and effective communication between and among all stakeholders involved with CDLI courses has the potential to address issues that arise as courses proceed and ultimately contribute to increased student participation and success. In particular, study data revealed a need to engage CDLI (E-teachers) in such processes, especially with respect to communicating with both parents and on-site school personnel including M-team members. This would also help reduce the somewhat isolated nature of the E-teacher.

**Recommendation 9:** That an ongoing plan be established to strengthen communication between CDLI teachers and onsite teachers, CDLI teachers and parents, as well as communication between home and school.

Students were also concerned at times and missed not having immediate and direct contact with their E-teacher, but it was also evident that effective communication was being maintained through asynchronous means normally associated with distance delivered courses. This was particularly important in schools that lacked teachers with the specialized subject matter in CDLI courses.

Within individual schools and communities a number of other factors emerged that potentially impact CDLI course success. These ranged from space within schools to properly accommodate CDLI students to expressions of concern about social and emotional issues impacting students in aboriginal communities. The latter is of more global concern, and although it extends beyond the scope of this study, it is a factor that needs to be considered.

Finally, it would seem appropriate for an on-going dialogue between all stakeholders directly and indirectly associated with CDLI course preparation and delivery in both the communities involved in this study and Labrador in general that would help monitor and continue to improve student success.

**Recommendation 10:** That a support committee be established with representation from CDLI schools, the Labrador School District and CDLI staff to monitor and support ongoing concerns related to student success.

## 7. REFERENCES

- American Center for the Study of Distance Education at the Pennsylvania State University. (1999). *Critical success factors for online learning*. Retrieved October 1, 2008 from [http://www.ed.psu.edu/ACSDE/Critical\\_Success\\_Factors.pdf](http://www.ed.psu.edu/ACSDE/Critical_Success_Factors.pdf)
- Council of Ministers of Education. (2004). *Quality education for all young people: Challenges, trends, and priorities*. Online document at URL: [www.cmec.ca/international/unesco/ice47.en.stm](http://www.cmec.ca/international/unesco/ice47.en.stm)
- Crouch, M., & Montecino, V. (1997). *Cyberstress: Asynchronous anxiety or worried in cyberspace – I wonder if my teacher got my e-mail*. Retrieved October 1, 2008 from [http://eric.ed.gov/ERICDocs/data/ericdocs2sql/content\\_storage\\_01/0000019b/80/15/05/b9.pdf](http://eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/15/05/b9.pdf)
- Cummins, J. & Sayers, D. (1995). *Brave new schools: Challenging cultural illiteracy through global learning*. New York, NY: St. Martins.
- Cuthell, J. P. (2002). *Virtual learning: The impact of ICT on the way young people work and learn*. Burlington, VT: Ashgate Publishing Limited.
- Daniels, D. (2004). Canada's Northern Indigenous Perspectives on Distance Learning. *Paper presented at the Information and Communication Technology in the Arctic. University of the Arctic: University of Finland Press.*
- Dillon, C. & Cintron, R. (Eds.). (1997). *Building a working policy for distance education*. San Francisco, CA: Jossey-Bass.
- Department of Education. (2000). Education Statistics 2000/1. St. John's, NL: Government of NL. Department of Education (2007). Education Statistics 2006/7. St. John's, NL: Government of NL.
- Downing, R. (2002). Bridging Aboriginal Learning Divides. *Report on Office of Learning Technologies Support to Aboriginal Communities*. Ottawa, ON: Government of Canada.
- Downs, M., & Moller, L. (1999, December). Experiences of students, teachers, and administrators in a distance education course. *International Journal of Educational Technology*, 1(2). Retrieved October 1, 2008 from <http://www.ed.uiuc.edu/ijet/v1n2/downs/index.html>

- Eggertson, L. (2007). The face of public education in Canada is changing. The Learning Partnership. Retrieved May 11, 2008 from: <http://www.thelearningpartnership.ca/>
- Fiddler, M. (1992). Developing and Implementing a Distance Education Secondary School Program for Isolated First Nation Communities in Northwestern Ontario. *Distance Education and Sustainable Community Development (Ontario)*. Retrieved May 1, 2008 from: [http://eric.ed.gov/ERICWebPortal/custom/portlets/recordDetails/detailmini.jsp?\\_nfpb=true&\\_ERICExtSearch\\_SearchValue\\_0=ED400156&ERICExtSearch\\_SearchType\\_0=no&accno=ED400156](http://eric.ed.gov/ERICWebPortal/custom/portlets/recordDetails/detailmini.jsp?_nfpb=true&_ERICExtSearch_SearchValue_0=ED400156&ERICExtSearch_SearchType_0=no&accno=ED400156)
- Flanigan, S. M. (2000). The computer ate my homework: MSSD students meet the challenges of high school in cyber space. *Odyssey, Winter*. Retrieved October 1, 2008 from <http://clerccenter.gallaudet.edu/Odyssey/winter2000/computer.pdf>
- Government of British Columbia (2001). *The Digital Divide in British Columbia*. Retrieved April 10, 2008 from: [www.network.gov.bc.ca](http://www.network.gov.bc.ca)
- Government of Nunavut (2005). *Distance Education in Nunavut*. Iqaluit, NU: Department of Education.
- Greenall, D. & Loizides, S. (2001). *Aboriginal Digital Opportunities: Addressing Aboriginal Learning Needs Through the Use of Learning Technologies (Detailed Findings)*. Ottawa, ON: Conference Board of Canada.
- Gruber, S. & Coldevin, G. (1995). Distance Education for Aboriginal Communities in Canada: Past Experience and Future Potential. *American Journal of Distance Education, 9*(3), 48-61.
- Hughes, J. (2004). Supporting the online learner. Athabasca University. Retrieved online October 1, 2008 from [http://cde.athabascau.ca/online\\_book/contents.html](http://cde.athabascau.ca/online_book/contents.html)
- Jewison, C. (1985). Our students, our future: Innovations in First Nations education in the NWT. *Education Canada, 35*(1), 4-8.
- Kearsley, G. (2000). *Online education: Learning and teaching in cyberspace*. Toronto: Ontario: Wadsworth Thomson Learning.
- Meyer, K. (2003). The web's impact on student learning. *T.H.E Journal, 30*, 14-24. Retrieved online October 1, 2008 from <http://www.thejournal.com/magazine/vault/A4401.cfm>
- Mood, T. (1995). *Distance education: An annotated bibliography*. Englewood, CO: Libraries Unlimited, Inc.

Mulcahy, D. (2002). *Re-conceptualizing distance education: Implications for the rural schools of Newfoundland and Labrador*. Retrieved October 1, 2008 from <http://www.mun.ca/educ/faculty/mwatch/fall02/Mulcahy.htm>

Office of the Auditor General of Canada (2004, November). *Indian and Northern Affairs Canada- educational program and post secondary student support* (sect. 5.2) Retrieved May 30, 2005 from: <http://www.oag-bvg.gc.ca/domino.reports.nsf/html/20041105.ce.html>.

Philpott, D.F., Nesbit, W., Cahill, M., & Jeffery, G. (2004). *An Educational profile of the learning needs of Innu youth: Brief summary of findings*. St. John's, NF: Memorial University of Newfoundland.

Rossmann, M. & Rossmann, M. (Eds.). (1995). *Facilitating distance education*. San Francisco, CA: Jossey-Bass.

Sanchez, J., Stuckey, M., & Morris, R. (1998). Distance Learning in Indian Country. *Journal of American Indian Education*, 37(3), 1-17.

Statistics Canada (2005). Study: Canada's visible minority population in 2017. *The Daily*. Retrieved March 23, 2007 from: <http://www.statcan.ca/Daily/English/050628/d050628d.htm>

Statistics Canada (2003a). International Adult Literacy and Skills Survey. *The Daily*. Retrieved April 30, 2008 from: <http://www.statcan.ca/Daily/English/051109/d051109a.htm>

Statistics Canada (2003b). International Adult Literacy and Skills Survey: Building on our competencies. *The Daily*. Retrieved April 30, 2008 from: <http://www.statcan.ca/Daily/English/051130/d051130b.htm>

Statistics Canada (2006). Performance of Canada's youth in science, reading and mathematics. *The Daily*. Retrieved April 30, 2008 from: <http://www.statcan.ca/Daily/English/071205/d071205b.htm>

Statistics Canada (2005). *Connectivity and ICT Integration in First Nations Schools: Results from the Information and Communications Technologies in Schools Survey, 2003/04*. Retrieved April 30, 2008 from: <http://www.statcan.ca/bsolc/english/bsolc?catno=81-595-M2005034>

Statistics Canada. (2007). *Community Profiles*. Retrieved May 8, 2008 from: <http://www.statcan.ca/bsolc/english/bsolc?catno=92-591-X>

The Alberta Distance Learning Centre. (n.d.). Retrieved October 1, 2008 from <http://www.adlc.ca>