

## THE STRAIGHT TRUTH ABOUT ONLINE LEARNING IN THE STRAITS: AN INVESTIGATION INTO THE NATURE OF EDUCATION IN A RURAL AND REMOTE REGION OF NEWFOUNDLAND AND LABRADOR

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### ABSTRACT

This paper reports on a naturalistic research project that was conducted in response to the educational concerns of the coastal rural communities of Labrador Straits. The research project investigated the current provision of education available to the children and the youth of these communities and found that due to declining population, changing demographics, lack of qualified teaching staff in the region and several other interrelated factors, there was an increased reliance on online learning in the small rural schools of the Straits as well as other rural regions of the province.

**Keywords:** online learning, distance education, small rural schools

### INTRODUCTION

Access to quality education and schooling is critical in determining the economic prosperity, future development and existence of communities in rural locations. Research has revealed that most rural schools are confronted with unique challenges associated with geographic location, racial segregation and limited educational and community resources (Johnson & Strange, 2007). There have been several studies during the last decade that found that due to the lack of attractive incentives, rural schools failed to attract highly qualified and experienced faculty (Hammer, Hughes, McClure, Reeves, & Salgado, 2005; Jimerson, 2006). As a result, rural schools often have to employ inexperienced teachers who are responsible for teaching a number of courses especially in the areas of mathematics, science and foreign languages. Teachers in rural schools more often taught outside of their subject specialization areas compared to their urban counterparts. Additionally, smaller rural schools unlike urban schools, often failed to provide a broad spectrum of advanced or specialised programs or course options to the students.

This article is based on a research project that was conducted in an attempt to respond to the educational concerns of the coastal rural communities of Labrador Straits. The research project investigated the current provision of education that was available to the children and the youth of the Labrador Straits communities. The project also provided an opportunity to the members of

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those communities to voice additional concerns and issues that they felt had been impacting on the educational achievement of their children. Given the exploratory and localized context of this research project, the researchers did not begin with specific research questions beyond these more generalized goals.

## LITERATURE REVIEW

In April 1979, the Government of Newfoundland and Labrador's Task Force on Education in its final report *Improving the Quality of Education: Challenge and Opportunity* (Crocker & Riggs, 1979) confirmed the reality of inequity in educational opportunities in the province's rural communities. The report indicated that many schools were unable to offer a variety of courses to their students and many schools did not offer programs in home economics, music, industrial arts, French, guidance, art, and even some sciences. According to the report, smaller schools did not have the requisite student population or the teacher expertise to provide equal opportunities to their students comparable to urban schools. It was evident from the report that like most rural areas, many rural schools did not have experienced and highly qualified teachers and were unable to offer many aspects of the provincially mandated curriculum. Under such circumstances, the rural schools could not compete in terms of programming with their larger, urban counterparts.

To counter this challenge, and following the recommendations of both the Crocker and Riggs (1979) and Riggs (1987) reports, in 1988 the province began implementing distance education programs in small schools in rural areas in order to provide access to secondary level courses that were important for post-secondary admission, but were difficult to offer in rural schools due to low enrolments. During the first year of operation, the program consisted of only one course. This course had a total enrolment of 36 students in 13 rural schools and was offered through the facilities of Telemedicine and Educational Technology Resources Agency (TETRA). During the 15 years that the TETRA was in operation, the students completed courses in mathematics, chemistry, physics and French as a Second Language (Barbour, 2005). The program was successful and grew from its inception to 898 enrolments in 11 courses by 1999-2000 (Brown, Sheppard, & Stevens, 2000). By 2001 this program had evolved into a web-based virtual school (i.e. the Centre for Distance Learning and Innovation [CDLI]). The aim of CDLI was to provide rural students with the same spectrum of programs and course opportunities as urban students.

The impact of distance education technology in the teaching and learning process on student achievement has been investigated in numerous studies. Cradler, McNabb, Freeman, and Burchett (2002) conducted a review of studies on teaching with technology and concluded that research findings consistently reported a positive impact on achievement in content area courses, higher order thinking and problem-solving, and workforce preparation. Research data indicated that students, who learned through technology, including distance education, typically had learning outcomes at least as good as students who learned through face-to-face instruction. Many comparative research studies on K-12 education have found that (K-12) students in online learning environments perform similarly or better than their in-class counterparts (Barbour & Mulcahy, 2008, 2009; Cavanaugh, Gillan, Bosnick, Hess, & Scott, 2005; Means, Toyama, Murphy, Bakia, & Jones, 2009). For example, Bernard and colleagues (2004) in their meta-analysis of the effects of distance education at all levels inferred that distance education using asynchronous learning methods was superior to synchronous learning methods overall, although (importantly) they indicated that K-12 students likely needed the structure of synchronous learning. Both Clark (2003) and Hannum (2007) concluded in their findings that technology by itself did not produce learning gains; rather it was the instructional design, pedagogy, and student support that impacted student learning.

Although distance education seems to be the most effective way to provide access to programs and courses to students in remote rural places where otherwise they would not have access to those programs, many studies have elaborated on the barriers that exist in implementing online distance education at various levels (Barbour, 2013a; Barbour & Reeves, 2009). For example, Berge

and Muilenburg (2003), in their study of K-12 educators' perceptions of barriers to distance education, reported increased time commitment, lack of funding, organizational resistance, lack of shared vision for distance education, and lack of strategic planning as the major barriers. Another study of student perceptions of barriers to distance education conducted by Muilenburg and Berge (2005) reported several factors that included administrative issues, social interaction, academic skills, technical skills, motivation, time and support, costs and Internet access, and technical problems. Though Muilenburg and Berge's study did not take into account the geographic location of the students nor indicate what proportion, if any, may be rural students, it is nevertheless very likely that rural students may also encounter some of these barriers when taking distance education courses (Hannum, Irvin, Banks, & Farmer, 2009; Irvin, Hannum, Varre, & Farmer, 2010).

The past two decades have seen much proliferation of online distance education at the K-12 level all over North America. Clark (2008) noted the growth and potential of online learning for K-12 schools and indicated an increase in the public's approval of high school students earning credits in online courses. Although it can be assumed that distance education definitely has the potential to address some of the issues that rural schools face in regard to access to quality education (Barbour & Reeves, 2009), the extent to which distance education was being used in rural schools or the barriers that the rural schools and their students faced when using distance education is not extensively documented so far; hence the calls for further research and investigation (Hannum et al., 2009).

The study *State of the Nation: K-12 Online Learning in Canada* examined the regulation of K-12 distance education in each of the thirteen Canadian provinces and territories, as well as the level of K-12 distance education activity in each jurisdiction (Barbour, 2013b). The authors have indicated that K-12 distance education had been growing in Canada, but the growth was unevenly spread and limited to certain jurisdictions more than the others. The level of K-12 distance education in Newfoundland and Labrador was reported to be relatively flat (Barbour, 2013a). Regardless, there was a certain level of K-12 distance education activity found in all of the thirteen provinces and territories, with British Columbia having the highest percentage of student participation. Also reported was a heavy reliance on print-based methods of distance education delivery in certain jurisdictions. Additionally, in Canada distance education was still perceived as a substitute for brick and mortar schools that serves as an alternative for situations where face-to-face learning is not feasible or economic (e.g. in rural areas or for students who are not able to attend or to succeed in traditional classroom environment).

Research into K-12 online learning has indicated that there are several benefits associated with K-12 online programs, both for schools as well as for individual learners. For example, Kellogg and Politoski (2002) stated that the benefits of K-12 online learning could be found in individualised instruction to meet the specific learner preferences, flexibility, higher levels of motivation, and in providing opportunities to students who were unable to attend traditional brick and mortar schools. Further, Berge and Clark (2005) mentioned expanding educational access, high quality learning opportunities, improving student outcomes and skills and educational choices as the direct benefits of K-12 online learning. According to Cavanaugh (2001), the most important benefit offered by K-12 online learning opportunities was that they allow small and rural schools to offer courses (including advanced placement courses) that they would otherwise be unable to teach. These benefits, however, do not come without certain challenges. During the past decade several researchers have predicted that students who are independent learners, possess high intrinsic motivation, and have superior time management, literacy and technology skills, are successful in K-12 online learning environments (Barbour & Reeves, 2009; Mandernach, Donneli, & Dailey-Hebert, 2006). However, the range of students enrolling in online learning opportunities was gradually becoming diverse (Barbour & Mulcahy, 2007; Cavanaugh, 2007; Molnar, Huerta, Barbour, Miron, Shafer, & Gulosino, 2015). Currently, the ability of virtual schools to support a broad range of student abilities appears to be limited (Barbour, 2013a; Molnar, Huerta et al., 2015). Scherer

(2006) advocated that as the range of students with new and different needs expanded, more research was required to ensure that online learning is a realistic and accessible opportunity for a wider body of students with diverse needs.

## METHODOLOGY

The foundational idea for this research was conceived at a Regional Workshop in Labrador sponsored by the Harris Center in partnership with the South Eastern Aurora Development Association and the Labrador Straits Development Corporation. The issues raised by the residents of the Straits communities at the workshop included: (i) limited alternatives or choices for courses and programs offered to the students, (ii) increasing number of students opting for general programs rather than academic and advanced courses, (iii) teachers having to teach a wider variety of courses than their urban counterparts and often teaching outside their competency areas, and (iv) increased dependency on web based or online education as a method for program delivery. In their submission to the Harris Center in relation to this project, Partners in Learning (2007) – a literacy advocacy group that serves the Labrador Straits communities – expressed concern about the Department of Education’s statistics that indicated an increasing number of students in the Straits graduating with basic credentials as compared to their urban counterparts who graduated with academic certifications. They questioned whether this could be related to the increased reliance on an online education delivery model with limited teacher-student interaction opportunities.

While instructor support was provided by the online or e-teacher in the online class environment, teacher-to-student interaction on a daily basis remained limited in many instances in the online distance education environment. In addition, the official view of CDLI is that online students do not need nor should expect pedagogical assistance for their online courses from school-based teachers. Given these circumstances, students in rural areas who needed more support and guidance than that provided by the current model of online learning became disadvantaged. Hence, several questions were raised such as: (i) whether the current model of web based online program delivery was sufficient for rural communities, (ii) whether this model of program or course delivery favoured urban students more than their rural counterparts, and (iii) considering the challenges of rural life, how could we develop a teaching learning model that would be conducive to rural education.

The Partners in Learning report concluded with a suggestion for an investigative research project on these issues in order to develop recommendations for a rural teaching-learning model that would facilitate the learning and achievement of children and youth in the rural regions of coastal Labrador Straits. Based on the recommendations of the Partners in Learning report, the researchers were generally guided by the following research questions:

1. What are the barriers that the rural students of the Straits were confronted with in regard to equitable access to quality education?
2. What might a more successful rural model of education look like for students in the Straits?

It was determined early in the planning stage of this research project that the best way to collect data for this project would be to go to the Straits and talk to the people directly involved with education in the region using a naturalistic case study methodology (Erlandson, Harris, Skipper, & Allen, 1993; Stake, 1995).

Research with broad and exploratory goals, such as in this study, are often associated with naturalistic inquiry, a methodology whose research design is usually not fully established before the study begins but emerges as data are collected, preliminary analysis is conducted, and the content becomes fully described (Erlandson et al., 1993, p. 66). Following this guidance, we allowed this case study – as well as the specific data collection and analysis methods – to evolve as the study unfolded. Shank (2002) indicated that the main purpose of a case study was to gain an

understanding of a unique case. Further, Merriam (1998) indicated that a case study was designed to provide *an intensive, holistic description and analysis* of a specific phenomenon (p. 27). Finally, Yin (2003) indicated that a case study was useful methodology when the study in question involved investigating a phenomenon within its own context where the boundaries between the phenomenon and the context were unclear. For the purposes of this study, the phenomenon in question was the use of distance education/online learning to address the educational needs of students attending schools located in the region of the Canadian province of Newfoundland and Labrador.

## The Case

The province of Newfoundland and Labrador is located on the eastern edge of North America. The province has both an island and a mainland portion with a total area of 505,066 square kilometres. The population of the province is about 550,000 with 60 per cent of the population living within a 150 kilometre radius of the capital city of St. John's; the remaining part of the province is sparsely populated. In Newfoundland and Labrador, 178 of the 279 schools in 2009-10 (i.e., at the time of this study) were located in rural areas (Government of Newfoundland and Labrador, 2010), and 85 were designated as necessarily existent<sup>1</sup>.

The study occurred in the Labrador Straits region as indicated in Figure 1 below.



**Figure 1: Map of the Labrador Straits (Government of Newfoundland and Labrador, 2009)**

<sup>1</sup> A term used to describe a school that cannot be closed because it is located so far from another school that it makes bussing the students impossible because of the distance.

The Strait of Belle Isle is a waterway in eastern Canada that separates the Labrador peninsula from the island of Newfoundland. The Labrador Straits (or the Straits) is a sub-region of the province that includes the communities of L'Anse au Clair, Forteau, L'Anse-Amour, L'Anse-au-Loup, Capstan Island, West St. Modeste, Pinware, and Red Bay. The participants of this study were community members of the Straits and the three participating schools in this study served all the K-12 learners of the Straits region (see Table 1 below for a description of these schools).

**Table 1: Profiles of the Participating Schools** (Mulcahy, Dibbon, & Norberg, 2008)

Name of the school	Description
Mount Olympus Academy <sup>2</sup>	K-12 School The school has approximately 190 students from K -12 Total teaching staff, clerical staff, cafeteria staff and custodian staff, of 23
Lady of the Lake Academy	K-12 school The school has approximately 58 students from K-12 Total teaching staff, clerical staff, and custodian staff of 12
Viking Memorial	K-12 school It is the smallest school in the study with a total school population of 31 Total teaching staff, clerical staff, and custodian staff of 7

As illustrated by Table 1, the size of each of these participating schools was quite small, which would be expected given that eight communities in the Straits region had a combined population of approximately 1800 people (with some communities having 25 or fewer residents).

### **Data Collection and Analysis Methods**

Four potential sources of relevant information were identified: students, teachers, parents and members of the community with an interest in education. The project began with a series of conference calls with key community informants (i.e., a purposeful sample) (Patton 2002). The purpose of these conference calls was to clarify the key issues and concerns of the local stakeholders. Following these calls, the research team visited the Straits and semi-structured interviews were conducted with parents, teachers and students (Fontana & Frey, 2000). Several in-person or telephone interviews were also conducted with individuals who possessed specialized knowledge of the issues in the area. All interviews were tape recorded and transcribed.

Surveys were distributed to all high school students in each of the schools prior to the focus group sessions (Marshall & Rossman, 1999). The survey was designed to obtain a listing of the courses the students were taking, including the number of distance education courses and those that were basic or academic. Further, sixteen focus groups were conducted in the Labrador Straits region (Kitzinger & Barbour, 1999) with educators, students and parents. Additional data regarding curriculum offerings, student achievement, and student program choices were obtained by contacting educational officials at the schools and the *Department of Education*. Finally, population and community data were obtained from *Statistics Canada*.

The quantitative data were analysed using descriptive statistics. The qualitative data generated was analysed using an inductive analysis approach (LeCompte & Preissle, 1993), which involved

<sup>2</sup> All school names are pseudonyms.

scanning the data for categories and relationships within individual transcripts and between transcripts. Due to the size of the sample, as well as the overall population of the Straits region, the authors have chosen to generalize the presentation of the data in the following Results section to protect the identity of individual participants.

## RESULTS

Careful analysis of the data collected from the interviews, focus groups, questionnaires and various other sources revealed a number of issues and barriers to access to quality education that the rural communities of Labrador Straits were confronted with and which contributed to a sense of educational inequality. Participants of this study believed that the youth and children of these rural communities deserved equal access to quality education, learning and career opportunities as their urban counterparts who attended schools in other regions of the province. The adults in the community realised that quality education provided a foundation to the future life condition and they expressed a fair and just expectation for equality of educational opportunities for their children with one parent stating: *If you don't get a good foundation then you can't get a good roof.* The different issues that emerged from the analysis of the various forms of data included curriculum issues, increased reliance on distance education, shifting of responsibility from the school to the home, program choices of students (i.e., basic vs. academic) and various other issues such as parent teacher communication, the Alberta syndrome<sup>3</sup>, declining enrolment, declining population, changing demographics, multi-grading and special education. All of these issues were interrelated and impacted each other to some extent. Below we discuss each of the barriers individually and try to estimate the impact of each of these issues on the prevailing educational system in the Straits.

### **Curriculum Issues**

The curriculum and the educational experiences available for students are key indicators of a quality education provided by any school. The curriculum enables learners to learn about themselves, their community and enrich themselves with knowledge of the larger world. Curriculum is a crucial component that helps students become competent in knowledge, to make the best possible post-secondary educational choices and nurture their hopes and aspirations as future citizens. Participants in this study were well aware of the central role that curriculum played in the quality of education and they raised a number of valid concerns regarding the curriculum in the Straits.

A major concern raised was the limitation in terms of the programs offered to the students and the program delivery model imposed on the schools because of their size. The three Straits schools that offered high school programs were very small schools by provincial standards. Program and course choices were limited and there was an increased reliance on distance education. The smaller the school, the fewer courses offered on site and the greater was the reliance on CDLI. Also the schools did not have enough teachers to offer a diverse set of programs and hence choices were limited. Parents expressed concern that students graduated with the basic minimum credits required to graduate.

While administrators and teachers realised this and struggled to provide more options to the students, their first priority was to ensure that students had access to the essential courses and could achieve the credits that were absolutely necessary to graduate. However, in the end, due to the restrictions and limitations imposed by limited enrolment and teaching staff, the schedule that was developed by the educators provided few options. Sometimes the students ended up taking

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<sup>3</sup> Alberta is one of the most prosperous provinces in Canada. Many rural youth, knowing they can go there with little education and make good money, choose to neglect their studies or drop out of school.

courses that were too advanced for them or too easy, or a completely different course than what they desired to because of incompatible scheduling with CDLI time slots.

### **An Increased Reliance on Distance Education**

In its original conception, distance education in Newfoundland and Labrador was intended to provide supplementary programming to small rural schools such as those in the Straits region and was particularly intended for the top academic students in small rural schools who were interested and capable of working in a self-directed, independent and mature way with limited direct supervision. With declining enrolment in rural schools, there was an increased reliance on online courses to deliver all high school programming. Again, the smaller the school, the greater was the reliance on CDLI. In many rural schools in the Straits, CDLI became the only way students could attain the academic credits they needed to graduate. The significance of this was that students who were able to master the demands of distance learning succeeded, while the remainder of the students were left struggling. Whether a student did well with an online course depended greatly on personal attributes such as the ability of the student to learn independently and be predominantly self-directed and motivated; this implied that students who lacked these attributes would be at risk academically. Most parents, teachers and administrators agreed that students in elementary and middle school experienced one kind of pedagogy coming up through the grade levels ('spoon-feeding' was the term often used), and then at the high school level they were being forced to take online courses completely unprepared for the level of independence that was expected of them.

While some students definitely had positive experiences while taking classes online, the research data revealed that the majority of the students preferred a regular classroom course. Many teachers felt that the students missed the social aspect of a regular classroom, interacting with a teacher and peers, while taking an online course. Many students found online classes difficult and claimed assignments were *time consuming* and *too much work*. As an administrator explained, online teachers placed high expectations on each student equally; whereas in an in-class setting instructors were more flexible and adjusted expectations of each student as they become familiar with the students.

Many students mentioned their marks dropped when they started taking online courses, and some academic students mentioned that they avoided online courses at all costs due to the fear of lower grades which they felt might put them at a disadvantage of getting a scholarship. The teachers also agreed that many capable students did not choose online courses. Even though most students found online teachers knowledgeable and helpful, some students felt too intimidated to ask questions, especially because they were not personally acquainted with the online instructor. Most students, however, reported that the online teachers were approachable and were prompt at responding to their emails and concerns.

Most of the schools in the Straits were equipped with top of the line computers and high-speed Internet connections. The participants reported some occasional failure of equipment, but in most cases the issues were resolved quickly and effectively. There were times when students were unable to log online due to circumstances beyond their control, such as power outages, server problems, weather or other technology glitches. In these cases students were required to use their own time to make up for the missed classes which the research participants thought was unfair for the young learners. Some students reported problems with the laboratory equipment for certain online classes, while other students reported that they were unable to do the required lab work because the materials were never supplied to their schools. The students also mentioned difficulties they encountered while conducting science experiments without any kind of adult supervision. Though it was not well defined in terms of how often and to what extent this kind of unsupervised science experiments were carried out, this issue definitely raises serious safety and legal concerns.

## **The Program Choices of Students (Basic vs. Academic)**

The concern related to program choice was expressed in the report by Partners in Learning, and the research team tried to gather relevant data on this issue. The research team contacted each of the participating school's administration and gathered data related to the program choices that the students had made over the period of last three years. An analysis of the data revealed that the Labrador Straits Region as a whole compared quite well with the Province as far as percentages of students enrolled in academic versus basic or general programs. However, this analysis also indicated that two of the schools had a higher percentage of students who graduated with a basic program. There was no straightforward answer as to why students chose to do a basic versus an academic program; rather there existed mixed opinion among research participants.

One of the factors that emerged was the increased reliance on distance education. As discussed in the previous section, lack of supervision and instructor support while taking online courses were major deterrents for students not selecting online courses. If an academic course was only available online then the students selected a basic course in order to avoid the extra burdens of the distance courses. At the same time other issues were also identified. Some participants held the view that in many cases it was a personal decision and depended on career choices that the student intended to make that acted as a factor. In some cases students opted for basic courses when both the parents and the students felt that the student would not be able to handle the rigor of academic courses. Some educators thought there was no relationship between students opting for basic courses and distance programming.

## **DISCUSSION**

Two major issues surfaced from the analysis of the research results from this study. The first was the lack of access to a wide range of program choices for the rural students. The second was the increasing reliance on distance education for course delivery.

The issues and barriers that the students in the Straits faced in their online coursework coincided with many of the factors that were reflected in Muilenburg and Berge's (2005) report on student perceptions of online learning as discussed earlier in this article. Most of the early programs in distance education at the high school level all across North America were primarily designed for students with higher aptitudes, higher achievement, and greater aspirations for post-secondary education (Mulcahy, 2002). Following a review of the literature, Roblyer and Elbaum (2000) concluded that *only students with a high need to control and structure their own learning may choose distance formats freely* (p. 61). Similarly, Mills (2003) in his analysis at a mid-Western virtual high school found that a typical online student was an A or B student. Related studies have indicated that e-learning opportunities were more suited to high achievers and students who are capable and willing to work independently, with discipline and self-direction (Barbour, 2013a; Land, Nwadei, Stufflebeam, & Olaka, 2003; Parker, 1999). Other studies conducted from a different perspective, have indicated that retention rates decrease significantly in distance programs where student selectivity is not maintained, leading Scherer (2006) to suggest that more research is required to ensure that online learning is an accessible opportunity for the increasingly diverse range of students with new and different needs. Findings from these studies raise the question as to whether all secondary-level students can achieve success with online learning (Mulcahy, 2002). This is an important question given that in more recent years, the range of students enrolling for online courses has been expanding (Barbour, 2013a; Barbour & Mulcahy, 2007; Cavanaugh, 2007).

Though virtual schooling appears to be an alternative in order to access quality education and offer variety in choices of course to the students in rural regions (such as the Straits), the capability of the present virtual schools to support and deliver courses for successful learning of a broad range of student abilities is quite limited and needs improvement in terms of providing remediation and extra support to the average student (Cavanaugh, Barbour, & Clark, 2009). A trained in-school professional could provide the much needed support and guidance to the young learners.

Researchers have found that these local sources of support (i.e. virtual school facilitators) are critical to providing students with the necessary support and guidance, as well as reducing dropout rates in online courses (Charania, Davis, Wortmann, Schoeny, Cohen, & Alexander, 2008; Roblyer, 2006; Roblyer, Freeman, Stabler, & Schneidmiller, 2007). In fact, the National Research Center for Rural Education Support (NRCRES) created a Facilitator Preparation Program designed to prepare school-based facilitators to support K-12 students enrolled in online courses (Irvin et al., 2009). Based on a two year, randomized controlled trial with more than 600 students in 93 rural high schools, the NRCRES researchers found that facilitators who participated in their training had an increased level of student retention and student performance (de la Varre, Keane, Irvin, & Hannum, 2011). Programs of this nature could be incorporated into the training provided to CDLI virtual school facilitators (known by the system as mediating teachers or m-teachers).

With the increased reliance on distance education for course delivery in these rural regions, it is also evident that there is an increasing necessity of preparing teachers to be effective as virtual teachers (Archambault, 2011; Davis et al., 2008; Kennedy & Archambault, 2012). The study by Dipietro and colleagues (2008) is still one of the few studies to have examined effective asynchronous teaching strategies in virtual schooling. However, this study – and many others like it – are often limited by geographic context and/or methodological issues (Barbour, 2013a). Finally, Cavanaugh, Barbour and Clark (2009) in their review suggested establishing best practices for online teaching strategies. Further research studies investigating the online learning experience of lower performing and average students can assist educators to design and develop pedagogically appropriate accommodations, modifications and support in online courses, for the increasing numbers of these students within the virtual schools.

## CONCLUSIONS AND RECOMMENDATIONS

The purpose of this project was to give the students, teachers, parents and interested community members of the Labrador Straits the opportunity to identify the factors they believed were impacting on the quality of education being provided in the region. The project team travelled to the region and met with all stakeholders and through a series of interviews and focus groups engaged in open-ended discussions of the pertinent educational issues. A number of critical issues emerged in this study. There were concerns about the overall quality of education that was being provided and also further concern about what might happen in the future. Two interrelated major issues were identified. One was the curriculum – the programs and courses students had access to in the schools; the other was curriculum delivery – the increased reliance on distance education through the facilities of CDLI to provide programs and courses.

Discussions with parents, teachers and students revealed that the majority of the rural students found the current model of distance education problematic. It was evident that the students required more school-based scaffolding and assistance when they pursued their high school courses online. Also, it was evident that high school students required some form of expert supervision during science laboratory work at school even if they opted for online courses for the theoretical portion of the course. Distance students could not be left dependent on the volunteering of a few community members and the good will of already overworked rural teachers. Neither could the educational needs caused by distance learning be expected to be met by the school-based teachers who already had a full and demanding teaching load.

The results of this research recommend that a modification to the existing CDLI model is appropriate and much needed. In particular, there has to be some provision for increased support and supervision in the school for students taking distance courses. There is a need for someone who would have dedicated time away from other duties and responsibilities to work with a school's CDLI students. This person would be responsible for monitoring and supervising students while they engage in their online courses. The on-site personnel would also act as a liaison between the student, the online teacher, the parents and the school's personnel. She/he would help students keep track of their assignments and tests, assist with technical problems, supervise

laboratory work and facilitate contact between students and their online instructor. We believe if these recommendations are accepted and acted on it would ameliorate many of the serious concerns raised by the stakeholders of the Straits. Under the present circumstances (continuing enrolment decline and reductions in school based teachers), there is no question that more and more students are going to have to rely on distance education provided by CDLI to graduate from high school. To graduate with an academic qualification, depending on the size of the school they attend, most students will have to take a significant portion of their program online. We believe if the right supports are in place more students will avail of the academic programs and more importantly have a better chance of succeeding. Rural students deserve this chance.

Beyond the specific context of the CDLI, the challenges faced in the Straits region, including the implementation of distance education to address some of those challenges, are similar to many other rural jurisdictions. Concerns over the appropriateness of this 'solution' for students of all ability levels should be at the forefront of rural schools and districts looking to implement distance education to address curricular limitations. The potential of student orientations and the need for support by teachers at the local level – with the appropriate levels of time allocated for those support duties – may assist in the remediation of the soft learning skills many adolescent learners do not possess. Rural schools and districts need to make specific plans for these factors in their own distance education programs.

As a research study that was conceived by and designed to address specific local needs, the results of this study are not designed to be generalisable. In fact, there are many scholars that argue that research that is primarily qualitative in nature is not intended to be generalised to larger contexts (see Meyers [2000] for a summary of this discussion). Having said that, International Association for K-12 Online Learning's *Online and Blended Learning: A Survey of Policy and Practice from K-12 Schools Around the World* report indicated that the use of distance education and online learning at the K-12 level is growing globally (Barbour, Brown, Hasler Waters, Hoey, Hunt, Kennedy, Ounsworth, Powell, & Trimm, 2011; Barbour, Hasler Waters, & Hunt, 2011). Many of the nations experiencing the largest growth are those with significant rural populations. The lessons learned in the Straits **may** be used as general guidelines in the design and development of K-12 distance education programs in these other jurisdictions—with the understanding that the recommendations from this study are contextual, and may need to be refined or revised to be effective in other jurisdictions.

## REFERENCES

- Archambault, L.M. (2011). The practitioner's perspective on teacher education: Preparing for the K-12 online classroom. *Journal of Technology and Teacher Education*, 19(1), 73–91.
- Barbour, M. K. (2005). From telematics to web-based: The progression of distance education in Newfoundland and Labrador. *British Journal of Educational Technology*, 36(6), p. 1055–1058.
- Barbour, M. K. (2013a). The landscape of K-12 online learning: Examining what is known. In M. G. Moore (Eds.), *Handbook of distance education* (3<sup>rd</sup> ed.) (pp. 574–593). New York: Routledge.
- Barbour, M. K. (2013b). *State of the nation study: K-12 online learning in Canada*. Victoria, BC: Open School BC. Retrieved from [http://www.openschool.bc.ca/pdfs/state\\_of\\_nation-2013.pdf](http://www.openschool.bc.ca/pdfs/state_of_nation-2013.pdf)
- Barbour, M. K., Brown, R., Hasler Waters, L., Hoey, R., Hunt, J., Kennedy, K., Ounsworth, C., Powell, A., & Trimm, T. (2011). *Online and blended learning: A survey of policy and practice from K-12 schools around the world*. Vienna, VA: International Association for K-12 Online Learning.
- Barbour, M. K., Hasler Waters, L., & Hunt, J. (2011) *Online and blended learning: Case studies from K-12 schools around the world*. Vienna, VA: International Association for K-12 Online Learning.
- Barbour, M. K., & Mulcahy, D. (2009). Student performance in virtual schooling: Looking beyond the numbers. *ERS Spectrum*, 27(1), 23–30.
- Barbour, M. K., & Mulcahy, D. (2008). How are they doing? Examining student achievement in virtual schooling. *Education in Rural Australia*, 18(2), 63–74.
- Barbour, M. K., & Mulcahy, D. (2007, April). *How are they doing? Examining student achievement in virtual schooling*. Paper presented at the annual meeting of the American Educational Research Association.
- Barbour, M. K., & Reeves, T. C. (2009). The reality of virtual schools: A review of the literature. *Computers and Education*, 52, p. 402–416.
- Berge, Z. L., & Clark, T. (2005). *Virtual schools: Planning for success*. New York, NY: Teachers College Press.
- Berge, Z. L., & Muilenburg, L. Y. (2003). Barriers to distance education: Perceptions of K-12 educators. *Proceedings of the Society for Information Technology and Teacher Education International Conference 2003* (pp. 256–259). Chesapeake, VA: Association for the Advancement of Computing in Education.
- Bernard, R. M., Abrami, P. C., Lou, Y., Borokhovski, E., Wade, A., Wozney, L., Wallet, P. A., Fiset, M., & Huang, B. (2004). How does distance education compare to classroom instruction? A meta-analysis of the empirical literature. *Review of Educational Research*, 74(3), 379–439.
- Brown, J., Sheppard, B., & Stevens, K. (2000). *Effective schooling in a tele-learning environment*. St. John's, Newfoundland and Labrador: Center for TeleLearning and Rural Education, Faculty of Education
- Cavanaugh, C. (2001). The effectiveness of interactive distance education technologies in K-12 learning: A meta-analysis. *International Journal of Educational Telecommunications*, 7(1), 73–88.
- Cavanaugh, C. (2007). Effectiveness of K-12 online learning. In M. G. Moore (Ed.), *Handbook of distance education* (2nd ed.) (pp. 157–168). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Cavanaugh, C., Barbour, M. K., & Clark, T. (2009). Research and practice in K-12 online learning: A review of literature. *International Review of Research in Open and Distance Learning*, 10(1). Retrieved from: <http://www.irrodl.org/index.php/irrodl/article/view/607>

- Cavanaugh, C., Gillan, K. J., Bosnick, J., Hess, M., & Scott, H. (2005). *Succeeding at the gateway: Secondary algebra learning in the virtual school*. Jacksonville, FL: University of North Florida.
- Charania, A., Davis, N., Wortmann, K., Schoeny, Z., Cohen, S., & Alexander, C. (2008). Assessing pre-service teachers' competence as a virtual schooling site facilitator. In K. McFerrin et al. (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2008*. Chesapeake, VA: AACE.
- Clark, R. E. (2003). Research on web-based instruction: A half-full glass. In R. Bruning, C. Horn & L. Pytlizillig (Eds.), *Web-based learning: What do we know? Where do we go?* (pp. 1–22). Greenwich, CT: Information Age Publishers.
- Clark, T. (2008). Virtual schooling and basic education. In W. J. Bramble & S. Panda (Eds.), *Economics of distance and online learning: Theory, research and practice* (pp. 52–71). New York: Routledge.
- Cradler, J., McNabb, M., Freeman, M., & Burchett, R. (2002). How does technology influence student learning? *Learning & Leading with Technology*, 29(8), 47–50.
- Crocker, R., & Riggs, F. T. (1979). *Improving the quality of education: Challenge and opportunity*. St. John's, NL: Queen's Printing for Newfoundland and Labrador.
- Davis, N. E., Roblyer, M. D., Charania, A., Harms, C., Ferdig, R., Compton, L., & Cho, M. O. (2007). Illustrating the 'Virtual' in virtual schooling: Challenges and strategies for creating real tools to prepare virtual teachers. *The Internet in Higher Education*, 10(1), 27–39.
- de la Varre, C., Keane, J., Irvin, M. J., & Hannum, W. H. (2011). Dual perspectives on the contribution of on-site facilitators to teaching presence in a blended learning environment. *Journal of Distance Education*, 25(3). Retrieved from <http://www.jofde.ca/index.php/jde/article/view/751>
- DiPietro, M., Ferdig, R. E., Black, E. W., & Preston, M. (2008). Best practices in teaching K-12 online: Lessons learned from Michigan Virtual School teachers. *Journal of Interactive Online Learning*, 7(1). Retrieved from <http://www.ncolr.org/jiol/issues/getfile.cfm?volid=7&IssueID=22&ArticleID=113>
- Erlandson, D. A., Harris, E. L., Skipper, B., & Allen, S.D. (1993). *Doing naturalistic inquiry: A guide to methods*. Newbury Park, CA: Sage Publication Inc.
- Fontana, A., & Frey, J. H. (2000). The interview: From structured questions to negotiated text. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2<sup>nd</sup> ed.) (pp. 435–454). Thousand Oaks, CA: Sage Publications, Inc.
- Government of Newfoundland and Labrador. (2009). *Highway map – Newfoundland and Labrador*. St. John's, NL: Queen's Printing for Newfoundland and Labrador.
- Government of Newfoundland and Labrador. (2010). *Education Statistics: Elementary-Secondary*. St. John's, NL: Queen's Printing for Newfoundland and Labrador.
- Hammer, P. C., Hughes, G., McClure, C., Reeves, C., & Salgado, D. (2005). *Rural teacher recruitment and retention practices: A review of the research literature, national survey of rural superintendents, and case studies of programs in Virginia*. Charleston, WV: Edvantia.
- Hannum, W. H. (2007). When computers teach: A review of the instructional effectiveness of computers. *Educational Technology*, 47(2), 5–13.
- Hannum, W. H., Irvin, M. J., Banks, J. B., & Farmer, T. W. (2009). Distance education use in rural schools. *Journal of Research in Rural Education*, 24(3). Retrieved from <http://jrre.psu.edu/articles/24-3.pdf>

- Irvin, M. J., Hannum, W. H., Varre, C. D. L., & Farmer, T. W. (2010). Barriers to distance education in rural schools. *Quarterly Review of Distance Education*, 11(2), 73–90.
- Jimerson, L. (2006). *Breaking the fall: Cushioning the impact of rural declining enrollment*. Washington, DC: The Rural School and Community Trust.
- Johnson, J., & Strange, M. (2007). *Why rural matters 2007: The realities of rural education growth*. Arlington, VA: The Rural School and Community Trust.
- Kellogg, L., & Politoski, K. (2002). *Virtual schools across America: Trends in K-12 online education*. Los Angeles, CA: Peak Group Research Corporation.
- Kennedy, K., & Archambault, L. (2012). Design and development of field experiences in K-12 online learning environments. *Journal of Applied Instructional Design*, 2(1), 35–49. Retrieved from [http://www.jaidpub.org/?page\\_id=853](http://www.jaidpub.org/?page_id=853)
- Kitzinger, J., & Barbour, R. S. (1999). Introduction: The challenge and promise of focus groups. In R. S. Barbour & J. Kitzinger (Eds.), *Developing focus group research: Politics, theory and practice* (pp. 1–20). Thousand Oaks, CA: Sage Publications.
- Land, D., Nwadei, A., Stufflebeam, S., & Olaka, C. (2003). Socio-technical system advancements: Making distance learning changes that count. *USDLA Journal*, 17(1). Retrieved from [http://www.usdla.org/html/journal/JAN03\\_Issue/article03.html](http://www.usdla.org/html/journal/JAN03_Issue/article03.html)
- LeCompte, M. D., & Preissle, J. (1993). *Ethnography and qualitative design in educational research* (2nd ed.). San Diego: Academic Press.
- Mandernach, B. J., Donnelly, E., & Dailey-Hebert, A. (2009). Learner attribute research juxtaposed with online instructor experience: Predictors of success in the accelerated, online classroom. *Journal of Educators Online*, 3(2). Retrieved from <http://www.thejeo.com/Volume3Number2/MandernachFinal.pdf>
- Marshall, C., & Rossman, G. B. (1999). *Designing qualitative research* (3<sup>rd</sup> 3d.). Thousand Oaks, Calif.: Sage Publications.
- Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2009). *Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies*. Washington, DC: U. S. Department of Education, Office of Planning, Evaluation, and Policy Development. Retrieved from <http://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf>
- Merriam, S. B. (1998). *Qualitative research and case study applications in education*. San Francisco, CA: Jossey-Bass Publishers.
- Meyers, M. (2000). Qualitative research and the generalizability question: Standing firm with proteus. *The Qualitative Report*, 4(3/4). Retrieved from <http://www.nova.edu/ssss/QR/QR4-3/myers.html>
- Mills, S. (2003). Implementing online secondary education: An evaluation of a virtual high school. In C. Crawford et al. (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference, 2003* (pp. 444–451). Chesapeake, VA: Association for the Advancement of Computing in Education.
- Molnar, A. (Ed.); Huerta, L., Barbour, M. K., Miron, G., Shafer, S. R., & Gulosino, C. (2015). *Virtual schools in the U.S. 2015: Politics, performance, policy, and research evidence*. Boulder, CO: National Education Policy Center. Retrieved from <http://nepc.colorado.edu/publication/virtual-schools-annual-2015>
- Mulenburg, L. Y., & Berge, Z. L. (2005). Student barriers to online learning: A factor analytic study. *Distance Education: An International Journal*, 26(1), 29–48.

- Mulcahy, D. M. (2002). Re-conceptualizing distance education: Implications for the rural schools of Newfoundland and Labrador. *The Morning Watch*, 30(1-2). Retrieved from: <http://www.mun.ca/educ/faculty/mwatch/fallo2/Mulcahy.htm>
- Mulcahy, D. M., Dibbon, D., & Norberg, C. (2008). *An investigation into the nature of education in a rural and remote region of Newfoundland and Labrador: The Straits*. St. John's, NL: The Harris Centre, Memorial University of Newfoundland. Retrieved from <http://www.mun.ca/harriscentre/reports/arf/2007/FinalReportMulcahyEducation.pdf>
- Partners in Learning. (2007). *A submission related to the nature of education in the Straits*. St. John's, NL: Harris Center, Memorial University of Newfoundland.
- Parker, A. (1999). A study of variables that predict dropout from distance education. *International Journal of Educational Technology*, 1(2), 1–10.
- Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3<sup>rd</sup> ed.). Thousand Oaks, CA: Sage Publications.
- Riggs, F. T. (1987). *Report of the Small Schools Study Project*. St. John's, NL: Queen's Printing for Newfoundland and Labrador.
- Roblyer, M. D. (2006). Virtually successful: Defeating the dropout problem through online school programs. *Phi Delta Kappan*, 88, 31–36.
- Roblyer, M. D., & Elbaum, B. (2000). Virtual learning? Research on virtual high schools. *Learning & Leading with Technology*, 27(4), 58–61.
- Roblyer, M. D., Freeman, J., Stabler, M., & Schneidmiller, J. (2007). *External evaluation of the Alabama ACCESS initiative: Phase 3 report*. Eugene, OR: International Society for Technology in Education. Retrieved from <http://accessdl.state.al.us/2006Evaluation.pdf>
- Scherer, J. (2006). *Special report: Virtual high schools*. San Diego, CA: Distance-Educator.com.
- Shank, G. D. (2002). *Qualitative research: A personal skills approach*. Upper Saddle River, NJ: Merrill Prentice Hall.
- Yin, R. K. (2003). *Case study research: Design and methods* (3<sup>rd</sup> ed.). Thousand Oaks, CA: Sage Publications.