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# Sustaining small rural schools via e-learning

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## Abstract

Many small rural schools have been closed during the reform movement. A mountain of studies suggest that small school have various advantages. Despite these advantages, small schools are still in danger of closure and consolidation. However, the advent of internet is a ray of hope to sustain small schools in rural areas. Many K-12 online programs across the world are providing educational opportunities to students. Most of those virtual schools have focus on urban and suburban students. However, the Centre for Distance Learning and Innovation (CDLI) has been established to provide equitable access to educational opportunities to rural students. The author has outlined a short history of distance education in the province of Newfoundland and Labrador. Various issues of e-learning at the K-12 have been identified. It is also intended that the e-learning model which is being used in the province can provide a model to sustain small schools across the globe.

**Key words:** Virtual schooling, Rural education, Small schools, Distance Education.

## INTRODUCTION

Since last 100 years, many small rural schools in North America have been closed or consolidated. To pave the way for consolidation and closure, the reformers, most of them were urban school administrators, used many trump cards such as centralization, specialization, comprehensive curriculum and fiscal efficiency (DeYoung, 1987). In the past, the research agendas focused on the demerits of small schools. Those researchers overlooked the strengths of small schools. However, there are constant calls from various rural educators who insist focusing on unique characteristics of each rural community in order to avoid further consolidation. Sustaining a community school may help to sustain the community. Mulcahy (2012) stated "Children are best served when they are educated close to home; communities are best served when they have a school to support and identify. Schools provide communities with hope for their futures".

Researchers such as Jimerson (2006) clearly showed the advantages of small schools. The findings of Jimerson's analysis favor small schools and indicate that:

1. There is greater participation in extra-curricular activities, and that is linked to academic success.
2. Small schools are safer.
3. Kids feel they belong.
4. Small class size allows more individual instruction.
5. Good teaching methods are easier to implement.
6. Teachers feel better about their work.
7. Mixed-ability classes avoid condemning some students to low expectations.
8. Multiage classes promote personalized learning and encourage positive social interactions.
9. Smaller districts mean less bureaucracy.
10. More grade in one school alleviate many problems of transitions to new schools (p. 7).

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Moreover, there is no evidence that shows that small schools are deficient or large schools are better than small schools. Due to the advantages of smallness, policy makers have started establishing small schools or small learning communities in urban areas. To sustain small schools in rural areas, many researchers such as Barker (1985) recommended the use of available technology. In this way, we can enjoy the benefits of smallness and have a comprehensive curriculum for our rural youth. Mulchy (2012) also states that the use of e-learning in rural schools has eliminated the reason to close a small school. Many virtual schools are being operated in North America. Some of them are Florida Virtual School, Abbotsford Virtual School, Virtual High School, Independent Learning Centre and Centre for Distance Learning and Innovation (CDLI). Most of the virtual schools have enrolment from urban, suburban and rural areas. However, CDLI mainly focuses on students from small rural communities. The intent of this paper is to describe the story of an e-learning program which primarily focuses on the provision of educational opportunities to rural youth in one Canadian province. This paper may be helpful for international educators and policy makers who are interested in rural education and rural development.

## Newfoundland and Labrador

Newfoundland and Labrador (NL) is the most easterly province of Canada. It incorporates the island of Newfoundland and mainland Labrador. It became the tenth province to enter the Canadian federation on March 31, 1949. Its total area is 405, 720 km². It is almost twice the size of Great Britain. Its size is bigger than many countries around the world such as Germany, Finland, Norway, New Zealand, Poland, Oman, and Kuwait. The total population of the province is 526, 329. Approximately 92 % of the province's population lives on the island of Newfoundland. More than 50% of the population lives in St. John's or in its suburbs, while the remainder mainly lives in many small and often remote coastal communities. These rural communities are not close to each other, some of the communities are only accessible by plane or by boat. Other main towns by population are Corner Brook, Grand Falls Windsor, Gander, Labrador city and Happy Valley- Goose Bay. Newfoundland and Labrador (NL) is characterized as a province of small remote coastal communities. Therefore, one of the major issues of the province is considered its rural nature.

The second factor which has major effect on rural education in remote communities is decrease in population. For years fishing was the main industry of the province. Due to the moratorium on commercial cod fishing in 1992, the province suffered largest unemployment rate and decrease in its population. Many people out-migrated in search of jobs. Some moved to other provinces while others moved to the urban centers of the province. The decline in population has dramatic impact on schooling in the province. As a result, the enrolment in schools dramatically dropped. The provision of equitable educational opportunities in rural communities has always been a constant challenge for educators in the province.

In the mid 1970s, there were around 160, 000 school-aged students while there are 67, 293 in 2014/15. Currently, there are 262 schools in Newfoundland and Labrador and 165 of them are rural schools which comprise 36% of the total enrolment. Decline in school enrolment resulted in teacher job cuts. Therefore, the provision of a comprehensive curriculum at the rural high schools became increasingly challenging.

## Distance Education in the Province

Considering geographical and demographical challenges of the province, several efforts were made by the government and the department of education in the past to provide equality of educational opportunities to students in rural communities through distance education such as correspondence courses and radio.

The first one was "The School on Wheels" project. It is also known as the school car project. In this project, a railcar was used to teach the children in small communities which were close to railway track. The program was named "The School on Wheels". The Department of Education, the Newfoundland Railway and the Anglo-Newfoundland Company jointly launched the project (Noseworthy, 1997). The railcar served the communities from 1936 to 1942. Then, the service was discontinued because of low enrolment in the program. The Department of Education established a correspondence division in 1938. Approximately one hundred children from remote communities were served through correspondence courses in the first year of the program (Department of Education, 1938). With the discontinuation of the School on Wheel program, the correspondence courses program was also came to an end.

Another effort was the use of radio broad cast for educational purposes. In 1950, Audio-Visual Division was made responsible for the promotion of school broadcast. During the year, Newfoundland first time actively participated in the planning and production of the Atlantic School Broad Casts (Department of Education, 1950). The aim of the broadcast was to supplement the curricular program of studies in of some courses. To cope with the issue of shortage of teachers in small schools, a committee lead by the Director of Audio-Visual Education recommended the use of correspondences courses with radio integration (Department of Education, 1957). The correspondence courses program was initiated in 1958. The correspondence courses program served rural students from various communities. Due to the introduction of scholarships and bursaries, the enrolment in correspondence courses program decreased. As a result, the correspondence courses program had to discontinue.

**Tele-Learning in the Province**

Dr. Frank Riggs from Memorial university of Newfoundland was appointed by the provincial Department of Education to conduct a study on small schools in the province in 1986. Dr. Riggs submitted his report “Report of the SMALL SCHOOLS STUDY PROJECT” in 1987. Riggs (1987) recommended distance education as a solution to the issue of the provision of comprehensive curriculum. The recommendations were:

> That by direct classroom teaching or by distance education, all senior hi high schools should have the ability to offer all courses which are prerequisite to entry into post-secondary institutions and the ability to accommodate particular course requirements of small numbers of students.
>
> That greater use of technology be made in program delivery in small schools; especially in small high schools
>
> That a Distance Education School be established and a principal and teachers be employed to assume responsibility for the development and administration of distance education courses.

As a result, in 1988-89, the grade ten Advanced Mathematics course was offered in 13 pilot schools through distance education using Telemedicine Education and Technology Resource Agency (TETRA) network, located at the Health Sciences (Johnson, 2011). This was the first step towards e-learning at the K-12 level in the province. The TETRA network used an analog, rather than a digital network; a combination of audio graphic technology and tele-writers (Barbour, 2007). A telephone-based conferencing system was used to join the classrooms. All the students were taught synchronously. The project became very popular. As a result, more courses were offered through TETRA. Similarly, many other schools showed their interest in the project and became a part of it.

**Center for Distance Learning and Innovation (CDLI)**

The Government of Newfoundland and Labrador appointed a Ministerial Panel on educational delivery in the classroom in the province in 1999. The Sparks-Williams Ministerial Panel recommended that the Department of Education establish a Centre for Distance Learning and Innovation in the province (Sparks & Williams, 2000). As a result, in December 2000 the Centre for Distance Learning and Innovation (CDLI) was established by the Department of Education. The main purpose of the CDLI was to increase learning opportunities and career options for students especially in rural areas. In the beginning, it was decided to pilot ten new Internet-based courses, one each in the ten English districts that existed at the time. Internet connectivity was upgraded in some parts where it was possible. In other places, many satellite services were located and purchased. So, after the successful pilot year, the CDLI implemented Internet-based courses to school year 2002-03. In that school year, 17 online courses were offered to high school students in rural areas. The CDLI was created as a division of the Department of Education. The e-teachers were hired by the CDLI through the cooperation of district schools in 2002. The teachers were also trained to use LMS (WebCT) and the synchronous tool (vClass). In the pilot project, the concept of a mTeacher (mediating teacher) was introduced. The mTeacher being one of the school's teachers located onsite would help out with the implementation. Later, mTeam (mediating team) was introduced. An mTeam had four components; administration, coaching, peer support, and technical. The administration such as registration and selection of the students, and the provision of adequate space for e-learners, was done by the principal. Coaching was done by the e-teachers with the help of an on-site facilitator. Senior fellow students would help their junior peers in basic training. Technical problems were solved by the district technician with the help of an on-site facilitator. Almost all the above mentioned mTeams members are working with the same responsibilities.

Currently, CDLI offers 42 senior high school online courses to approximately 1000 high school students. The courses through the CDLI are offered synchronously and asynchronously. The CDLI is the only organization providing K-12 online distance education in the province. In the CDLI modal, the principal or the designate at school levels selects and registers students for online courses. The principal also makes sure that students have adequate supervision while they are in an online class. The M-Team (On-site support team consisting of administration, teachers, district technology support personnel as well as students) supervises and liaisons with the e-teacher. Senior students help their fellows in basic training and coaching. Technical issues are solved by the district technicians in partnership with the CDLI.

To cope with the issues of decreasing population and a large geographical area of Newfoundland and Labrador, virtual schooling was introduced under necessity. However, it evolved over time through various steps which were taken in the past. The inception of web-based courses through the CDLI is one of the major historical development in the province. As the proliferation of virtual schooling is growing, the demand of change in traditional teaching is also increasing. This model can be used elsewhere in order to enhance educational opportunities for rural students.

Virtual learning is increasing all over the world. However, some factors impede virtual schooling. One of the impediments to the growth of virtual schooling is infrastructure and technical issues in some jurisdictions. Rice (2006) reports some issues such as lack of funding, technical issues and untrained personnel. Setzer and Lewis (2005) mentioned some other issues related to virtual schooling including course development, limited technological infrastructure, restrictive federal, state, or district policies, and concerns about receiving funding based on student attendance for distance education. The most common obstacles to distance education are related to teaching in the e-learning environment. Berge and Mrozowski (1999) report the challenges to e-learning are concerns about the cultural change, concerns about the pedagogical change, and the lack of support for teachers. Besides above mentioned barrier some other barriers also impede e-learning such as difficulty in implementing distance courses and limited

connectivity (Hannum et al., 2009; Irvin et al., 2010). Another impediment to virtual schooling is cost related. Berge and Clark (2005) also described some challenges to virtual schooling such as high startup costs associated with virtual schools, access issues surrounding the digital divide, approval or accreditation of virtual schools, and student readiness and retention issues.

One common issue in the literature concerns student achievement and performance. The question is asked do students perform as well or better in virtual schools compared to brick and mortar schools. Numerous research studies have been conducted on students' performance in online courses at university level. However, studies related to students' performances at the K-12 online courses are very few. Investigations that have been completed indicate that students in an online learning environment perform similarly as they do in brick-and-mortar schools (Barbour & Mulcahy, 2006; Cavanaugh, Gillan, Kromery, Hess, & Blomeyre, 2004; McLeod et al., 2005). According to Rice (2006), the success and failure of online learners is the same as in the conventional schools. Their success depends on teaching methodology and mode of delivery. Hannum et al., (2009) report that the school districts which offered online courses were satisfied with the delivery mode and students' achievements.

The success in online courses is not guaranteed for all learners (Lee & Figueroe, 2012). Young learners have different characteristics than the adult learners (Cavanaugh et al., 2004). Therefore, adolescents need a specific set of skills to be successful in an online learning environment. The characteristics of a successful online learner are highly motivated, self-directed, self-disciplined, independent and conversant with technology (Haughey & Muirhead, 1999). Roblyer (2005) reports that psychological and technical factors make a successful online learner. Roblyer further explains that a successful online learner should have the following characteristics:

- Access to and expertise with computers
- Organization and self-regulation
- Beliefs about achievements
- Responsibility
- Risk-taking

Rice (2006) also suggested mentioned four pairs of characteristics to be successful in an e-learning environment. The characteristics are achievement and self-esteem beliefs, responsibility and risk taking, technology skills and access, and organization and self-regulation. Lee and Figueroe (2012) also states that student's motivation and management skills, parent involvement and teachers' expectations are significant factors in an online learning environment.

One significant issue in virtual schooling is high dropout rate. Virtual high schools have high dropout and failure rate which in some cases reach as high as 60% (Roblyer, 2005; Roblyer, 2006). The reason for this is that online courses may not be appropriate for all learners (Mulcahy, 2002). The students lack the necessary attributes to succeed and or they lack sufficient school based support.

Rice (2006) pointed out that isolation in online courses was the main reason of high drop out. Students feel loneliness because of the lack of interaction between students and between teacher and students. Therefore, there is immense need to enhance interaction between peers and e-tutors (Stevens, 2008). In their qualitative study, Barbour and Hill (2011) found that students in synchronous classes sought assistance first from their peers, and then from on-site facilitator and e-tutor respectively. Student choice of courses is also another important factor. If students are given opportunities to independently choose their courses, the rate of completion increases (Ronsisvalle & Watkins, 2005).

Prior learning also plays a critical role in e-learning success. Learners' previous experiences in an online learning environment help them to succeed in their courses but also in later stages. According to Ronsisvalle and Watkins (2005), prior experience in online courses influences students' achievements. Furthermore, they also perform well when they study at post-secondary institutions. Therefore, in order to know students' prior know how about e-learning, Ronsisvalle and Watkins suggest that learners' assessment prior to enrolment in online courses should be compulsory. In fact prior assessment helps teachers to determine learners' learning styles, computer skills, self-management, locus of control and other skills which help them to succeed in an online learning environment (Lee & Figueroe, 2012).

Motivating online learners is another serious issue. Motivation is very important for students' success in an online learning environment (Choi & Johnson, 2005). Research shows that convenience, flexibility in scheduling, credit recovery, accelerated learning opportunities, student attributes and their choice of course delivery methods influence motivation (Mills, 2003). Weiner (2003) states that technology support, teacher support and interaction among peers influence students' motivation. Students should be encouraged and supported to maintain their motivation or to increase their motivation (Lee & Figueroa, 2012).

The role of teachers in an online learning environment is as important as it is in a face to face classroom. They need all the skills and knowledge of traditional teachers, they also need additional qualities and skills (Davis et al., 2007; Hawkins, Graham & Barbour, 2012; Rice, 2006). E-teachers also need some specific skills just like e-learners (Roblyer, 2005). An e-teachers has to perform multiple roles. Goodyear, Salmon, Spector, Steeples, and Tickener (2001) described the role of an e-tutor as: a content facilitator, a metacognition facilitator, process facilitator, an advisor, an assessor, a technologist and a resource provider.

The role of a teacher and a student in an online learning environment is slightly different from the conventional classroom. In this environment, like e-learners, teachers also need a specific set of teaching methods (Compton, Davis & Mackey, 2009). Therefore, pre-service teacher training and professional development are essential factors to perform the responsibilities of an e-tutor (Goold, Coldwell & Craig, 2010). E-tutoring becomes problematic and unsuccessful when untrained teachers are appointed to teach. Cosetti (2002) found that e-tutors need specific training to deal with online learners because e-tutoring was not possible with conventional teacher training. Irvine, Mappin and Code (2003) confirmed a need for program to prepare pre-service teachers for online teaching. Likewise, Stevens (2008) also calls for the professional development educational program to prepare teachers for virtual teaching.

Barbour and Mulcahy (2004) state that e-learning may not be suitable for all learners. Therefore, many learners require school based support to be successful in an online learning environment (de la Varre, Kean & Irvin, 2011). Barbour and Mulcahy state that in some learning environments, students need and receive significant support from on-site personnel. The on-site facilitator is directly available to students and physical present at school (Irvin et al. 2009). Facilitators contribute a lot to the success of online learning (Barbour & Mulcahy, 2009). Facilitators need to know their students very well (de la Varre, Kean & Irvin). They can motivate and assist learners according to their needs. Without specific training they can't assist online learners properly.

## CONCLUSION

Many small schools have been closed or consolidated around the globe. One of the main reasons is described that small schools are unable to provide a wide range of courses to rural students. However, the advent of web-based learning has eliminated the reason of lack of comprehensive curriculum in rural schools. Of course, there are many online schools offer

courses to K-12 students. But very few of them have main focus on rural population. CDLI is one of those virtual schools which have focus on rural students. It has been offering program for almost fifteen years. This model of e-learning can be applied at other places with some changes. To be sure, there are some issues of e-learning environments. These challenges can be overcome with proper support from the administration, community and from the parents.

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