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Introduction

While distance education has been around for much of the twentieth century, it has only been the past two decades that there has been much proliferation at the K-12 level. For much of the past twenty years those engaged in distance education in the post-secondary and business environments have been experimenting with distance education over the Internet, often referred to as web-based learning or online learning. With the creation of the Florida Virtual High School and Virtual School High in Massachusetts in 1995, web-based distance education also began to formalize at the K-12 level.

In 2000-01 the Centre for Distance Learning and Innovation began offering web-based distance education courses, primarily to students attending small, rural schools throughout the Province of Newfoundland and Labrador. Over the past five years there have been some minor changes to the design and delivery of instruction offered in this innovation, however, the overall system has remained fairly consistent as it was based upon over a decade of experience with distance education in the province. At present the system has more than 1500 enrollments in more than two dozen courses to students across the province.

The author's purpose in this article is to describe the context of Newfoundland and Labrador, specifically focusing upon the rural nature of the province. He will also examine some of the unique challenges than have been identified by the Government of Newfoundland and Labrador related to the issue of rural schooling. The author will then discuss the evolution of distance education in the province, as a means to address some of the identified challenges, and how these individual school and district-based programs led to the creation of a province school of distance education. Finally, the author will examine the operation of that school and how that operation is affected by "today's students", at least as they are portrayed in popular media.

Newfoundland and Labrador: A Rural Province

The rustic majesty that is Newfoundland & Labrador can be summed up in two words: "people" and "place." Both are unforgettable. The inhabitants of this isolated locale are as real as it gets. They are unpretentious, thoughtful, and witty. They'll charm you with their accents and their generous spirit. Though their lifestyle is neither opulent nor lavish, they will never hesitate to help a person in need. It comes from living in a harsh environment where a helping hand can make the difference between survival and some other, ugly, alternative. (Chafe & Pendgracs, 2004, p. 1)

This excerpt is taken from *Frommer's Newfoundland and Labrador* travel book, a widely circulated and respected tourism source. This is the vision of Newfoundland and Labrador that is painted for those who are interested in traveling to Canada's most easterly province. Geographically speaking, Newfoundland and Labrador has a total area of just over 400,000 km 2 – or slightly bigger than the State of California – with the Labrador portion of the province making up three quarters of that land mass. As of the 2001 census, the population of the province was 512,930, with only about 30,000 of those living in the larger Labrador region (Statistics Canada, 2003). The capital of the province is St. John's; with 60% of the population living within a one hour drive of the capital. In addition to a small population that is spread out over a vast geography, Newfoundland also has a high number of communities compared to its Atlantic Canadian neighbors – three quarters of which have less than 1,000 people.

Rural communities have been the pulse of Newfoundland since it was re-discovered by Europeans when John Cabot made landfall in Bonavista in 1497. Cabot reported to King Henry VII, the sponsor of his voyage, the "codfish were so thick that they stayed the progress of the vessel," so it is not

surprising that Newfoundland came to be dominated by a single industry for much of the past 500 years – the fishery. These small rural communities have essentially been an extension of this industry, where people settled in every coastal bay that was suitable for the harvest of this single resource (i.e., the bay provided a natural shelter for the boats, the beach was rocky and suitable for the drying and salting of the fish, or simply the location was close to known fishing grounds). A typical community could easily be described as a settlement with several hundred residents living in homes that are predominantly close to the waterfront. Typically, there is a public (i.e., government) building in the community where the various services offered by the provincial and federal governments would be housed. There is also a Government wharf, and it is not atypical to see numerous private wharfs and fishing stages also littering the coastline. These days, there is only a small chance that there is a fish plant operating in the community, as these have become more centralized and the fish landed at the government wharf is put on ice and trucked to a larger community that has a fish plant. These communities are bound to include one or more churches; even with their small populations it was not uncommon for the residents to have one church for each Christian denomination in the community. Finally, there is also likely a school being used either as a school or as a social center. It is likely that the school is near a church given that only recently churches lost their control over the provincial education system.

Newfoundland and Labrador's education system has seen dramatic changes over the past decade, beginning with the re-organization of the denominational education system to a single public system. What this re-organization has meant is that many rural communities that may have had two or more small denominationally-based schools, maybe in the same community or within busing distance of each other, have had those schools amalgamated or closed in favor of larger regional rural schools. In fact, the number of schools in the province has decreased from 593 in 1986 to 432 in 1996 to 287 for the 2006-07 school year, approximately two thirds of which will be located in rural areas (Govt. of NL, 1986, 1996, 2006). Almost half of these rural schools are designated as necessarily existent (i.e., 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 not feasible due to distance).

The Challenge of Rural Schooling

In April 1979, the Government of Newfoundland and Labrador's Task Force on Education released its final report entitled *Improving the Quality of Education: Challenge and Opportunity* (Crocker & Riggs, 1979). The report confirmed the reality of the inequity of educational opportunities within the province's school system. Specifically, the report stated that not all schools were able to offer the same variety of courses to their students and many were not able to offer programs in home economics, music, industrial arts, guidance, art, and even some sciences. The authors of the report concluded that there was "little doubt that increased school size [had] the effect of increasing the variety of program options available" and that there was also a "problem of the range of competence of staff in smaller schools" (Crocker & Riggs, 1979, p. 104). Smaller schools, the report concluded, did not have the size or the teacher expertise to provide equal opportunities to their students as schools in larger and more urban areas.

This report led personnel employed in government agencies and academic institutions to conduct a series of studies that investigated the challenge of small and rural schooling, in addition to a number of interventions initiated by individual school districts. The first of these studies was the Royal Commission on Employment and Unemployment. In its final report, *Education for Self-Reliance: A Report on Education and Training in Newfoundland*, the author found "glaring differences in educational attainment between urban and rural areas… [and that] rural Newfoundlanders are less educated than their urban counterparts, and it appears that the gap is growing" (House, 1986, p. 52). A year later the Small Schools Study Project was given a mandate to study challenges facing small schools in the province and recommend ways to enhance the educational opportunities for rural school students. The project staff surveyed administrators, teachers, and students from the 160 smallest schools in the province, while also conducting a national literature review and inviting written submissions from provincial school board and other stakeholders. Similar to the findings of the Task Force on Education in 1979, Riggs (1987) concluded that the number and variety of courses offered in small schools were limited, and that rural schools had difficulty acquiring and retaining qualified teachers due to more attractive incentives to teach in larger centers. This reality meant that rural

schools were typically staffed by inexperienced teachers who were generally required to teach a wider selection of courses. Rural teachers also were teaching more often outside of their subject area training than their counterparts in larger centers. To address these problems, Riggs recommended the creation of a distance education school.

Distance Education in Newfoundland and Labrador

In 1988, the province implemented a program of distance education for rural high school students. The main purpose was to provide students in small schools with access to secondary level courses that were important for post-secondary admission but difficult to offer in rural schools due to low levels of student enrollment. For example, during the 1989-90 school year 38 of the 548 schools in the province had less than 25 students (Government of Newfoundland, 1990). In its first year of operation, the program consisted of just one course: Advanced Math 1201. Thirty-six students in 13 rural schools took this course. Over the next three years, additional courses were developed until the entire advanced mathematics curriculum was available through the Telemedicine and Educational Technology Resources Agency (Tele-medicine/TETRA). This Tele-medicine/TETRA distance education program utilized an audio-graphics system (sometimes referred to as a telematics system) using bridging technology to provide conference calling facilities that were accompanied by a telegraphic device for reproducing handwriting by converting the manually controlled movements of a pen into signals that would appear on all of the computer screens linked to the audio-graphics network. Students would spend 50% to 80% of their instructional time using this synchronous distance education system and the remainder of their time completing correspondence-style work which was submitted using a fax machine.

In 1989, the Task Force on Mathematics and Science Education released its final report, *Towards an Achieving Society* (Crocker, 1989). In this report, Crocker indicated that due to low enrollment and lack of specialized teachers, rural students were still not receiving the same mathematics and science opportunities as their urban counterparts. Shortly after the Royal Commission of Inquiry into the Delivery of Programs and Services in Primary, Elementary, Secondary Education in 1993 (i.e., Williams, 1993), which recommended a more comprehensive distance education strategy, the provincial distance education program was expanded to include the complete physics and chemistry programs and upper level French as a second language course.

The distance education experiment proved successful and the program grew to 11 courses with 898 course enrollments in 1999-2000. A total of 703 students in 77 different rural schools were taking one and sometimes two courses (Brown, Sheppard, & Stevens, 2000). However, this distance education program was intended for a certain type of student. The selection of more academically advanced courses such as the higher level mathematics and sciences excluded many students from the outset. In their comprehensive study of distance education in Newfoundland and Labrador, Brown et al. (2000) described how school administrators, teachers, and even parents were well aware that students enrolled in distance education needed to be successful academically, to possess self-discipline, to have demonstrated academic ability, and to be prepared for extra independent work. However, even with the highly selective nature of these distance education opportunities, Mulcahy (2002) noted that it had been "clearly demonstrated that many students taking distance courses required and received a significant amount of pedagogical assistance with 'matters of content' from school based personnel" (Classroom Teachers: A Mediating Role section, ¶ 6).

Beginnings of Web-Based Delivery

In 1990, the Government appointed a *Royal Commission of Inquiry into the Delivery of Programs and Services in Primary, Elementary, Secondary Education*. While the main focus of its report was the denominational education system that existed in the province at the time, the Commission also recommended:

that a School of Distance Education and Technology be established to assume responsibility for the delivery of distance education courses and services, and the integration of new technology in the

school system [and] that the School of Distance Education and Technology seek to deliver full credit senior high school courses that meet provincial learning objectives. (Williams, 1993, p. 321)

The Commission felt that the Tele-medicine/TETRA system, along with the use of CD-ROMs, electronic bulletin boards, and computer databases would be able to serve as the potential delivery model. However, at the time there wasn't an existing model available on which to base this new province-wide system, and this recommendation was quickly pushed aside for the changes coming in the system over the next three years.

One of the earliest models for a school of distance education was the East-West Project in 1996, which was a joint project by the governments of British Columbia, Newfoundland, New Brunswick, and Alberta to produce a course based on information technology curriculum targeted to adult learners at the high school level. Funded through the Office of Learning Technologies and Industry Canada, each province was responsible for creating one of the 30-hour five modules: web publishing; graphic design; telecommunication networks; telecommunications; and computer applications. Science, Technology Education and Mathematics Network (STEM~Net), a computer network for educators (Mann & Weir, 1994) and the Department of Education for Newfoundland and Labrador developed the Graphics Design module (see http://www.cdli.ca/eastwest/).

The real value in the project, however, came from the lessons learned in terms of the design of web-based instruction. McGreal (1997) indicated that it was determined early in the project that standards would be necessary to ensure that each of the modules were consistent. He also stated that these standards were used in the creation of a course development template. These standards were adopted in other jurisdictions, as evidenced by EuroPACE 2000 (1999), that was attempting to establish effective use of telematics and multimedia in higher education and lifelong learning within a network of trans-European universities. In a planning document they commented on the standards developed by the East-West Project that:

if respected, allow for students to take (part of) their education in a virtual, though uniform environment, giving them a more comfortable feeling. And, as with all standards, modifications will be abundant, only to improve the quality of courses on-line, the best promotion for web-based learning. (Some Guidelines for a Web-Based Learning Environment section, ¶ 3)

Shortly after the East-West Project, individual school districts began to experiment with web-based methods of delivery for distance education.

One of the largest of these web-based initiatives began in 1999, when the Centre for TeleLearning and Rural Education at Memorial University initiated the Vista School District Digital Intranet (VDI) (Stevens, 1999). This project developed a district-wide intranet to offer university-level (i.e., Advanced Placement [AP]) mathematics and science courses for online delivery to the eight rural schools with secondary grades within the Vista School District. According to Stevens (2002), students were taught "in real (synchronous) time using audio, video and electronic whiteboards over the Internet, combined with… independent (asynchronous) learning, senior students were able to both interact with one another on-line as well as work off-line in their own community schools" (Teaching and Learning in a School-District Digital Intranet, ¶ 2). While there were many lessons that were taken from the VDI project, the refinement of the standards and course development template from the East-West Project for an adolescent audience, along with ideas on how a combined asynchronous and synchronous delivery model could be implemented, were among the forefront.

Even with these standards and a combination synchronous-asynchronous delivery model, this program was successful only with a very selective kind of student. In the final project evaluation, Stevens (1999) described an actual student from this project who he felt possessed the characteristics and a particular routine that made him an effective online learner.

He goes home from school and works from 4 p.m. until supper at 5 p.m. then from 6-9 p.m., Monday to Thursday and also for much of Sunday. He has his own room at home with plenty of study space

and his own desk. He also has his own room at school in which to work as he is the only AP student there.

His Principal and many of the teachers at his school follow his progress and report on this to the rest of the students. Accordingly, many of his fellow students take an interest in his on-line learning and have learnt about the requirements of AP subjects. From time to time the Principal will report to other teachers a good grade that this AP student has achieved. There is a qualified teacher in this student's AP subject in his school although he has never taught at this advanced level.

He maintains that it is necessary to work steadily and keep to working regardless of any problems that come his way. He clearly relates very well to his AP teachers and E-mails him regularly. If there is a problem he contacts his AP teacher. From time to time he E-mails a student at Arnold's Cove who is taking the same on-line course.

This student maintains that his AP course does not interfere with his social life as long as he gets works done by the time he sets himself – 9pm. His main concern appears to be the amount of work needed for the prom later in the year – particularly the decoration of the gymnasium.

At home his mother – an ex teacher with a degree – "keep me going on this" (AP course). His mother "understands science and what I am supposed to do." She is pleased with his marks and follows his progress closely. His mother "rates me with my older brothers and sister aged 25 and 23. They got 70 and 75% respectively in this course in their first year at MUN." One brother is now doing honors [*sic*] in geology at MUN and a sister has completed a business degree. Another sister is doing a Masters degree in biochemistry at present and contemplating a PhD.

He summed himself up as someone who has preferred to work by himself all through his school life. However, he pointed out that he has never been afraid to ask a teacher questions when he did not understand something. (p. 6)

The description of a student who has a teacher as a parent, two siblings completing a graduate-level education, access to a desk and sufficient work space in the quiet and comfortable environment of their room is not the description of a "typical" student. In fact, the student described by Stevens is rather selective in terms of a potential audience for online learning opportunities. However, even with the limited nature of students who could access the VDI; it, along with the East-West Project and other projects like them produced the authoring standards, templates, and course delivery model that were used as the basis for further province-wide web-based distance education initiatives. In addition, many of the individuals who were involved in these same projects would become key players in the province's first web-based distance education initiative.

The Centre for Distance Learning and Innovation

In 1999, the Government appointed a ministerial panel to, among other things, "examine the current educational delivery model and consider alternative approaches" (Sparkes & Williams, 2000, p. 2). In their report, the ministerial panel recommended the creation of the Centre for Distance Learning and Innovation (CDLI) to be based upon the web-based model that had been evolving throughout the province. This model was not to be "totally dependent on high bandwidth technologies [and have a] minimal reliance on synchronous communications, fixed schedules or other constraining elements" (Sparkes & Williams, 2000, p. 65). The vision of the CDLI was to provide access to educational opportunities for students, teachers and other adult learners in both rural and urban communities in a manner that renders distance transparent; eliminates geographical and demographic barriers as obstacles to broad, quality educational programs and services; and develops a culture of e-learning in our schools which is considered to be an integral part of school life for all teachers and students.

The CDLI began in 2001-02 with 10 courses field tested in 10 districts (i.e., one course per district), having a total of 200 student enrollments from 76 different rural schools. After the field test, the CDLI expanded its course offerings so that students from all over the province could access any course.

Over the past four years, the CDLI has increased its offerings to the point where there are 1,500 student enrolments from 95 different schools in 35 courses in 2004-05 (Government of Newfoundland, 2004).

The CDLI provides a variety of instructional support for students enrolled in any of their 35 courses (Centre for Distance Learning and Innovation, 2003). The two main sources of this support come from synchronous and asynchronous instruction. The CDLI has experienced and highly qualified teachers who provide, depending on the subject area, anywhere from 30% to 80% of the students' scheduled time (which is 10 one hour periods over a fourteen day cycle) in synchronous instruction using the voice over Internet protocol software, *Elluminate Live*®. This software allows for two-way voice over the Internet, a shared, interactive whiteboard, instant messaging, application sharing, breakout rooms, and interactive quiz and survey management. Through this software, teachers are able to provide synchronous instruction in much the same way that they would in a traditional classroom.

The asynchronous instruction is conducted using a course management system called *WebCT*®. This software provides the teacher and students with a variety of tools, including: a discussion forum, a shared calendar, an internal e-mail system, and a place to house the course web pages. The course web pages are designed by a team of two individuals: a teacher acting as a subject matter expert and a multimedia specialist to add images and interactive items into the content. The course web pages are divided up into the units called for in the provincially mandated curriculum guide, further divided into sections which are akin to themes that may flow in each of the units, and finally into lessons which are designed as the items of actual asynchronous instruction that can be completed in usually one to three hours of student time. Each lesson is broken down into five component parts (see Figure 1).

Figure 1: Overview of the Lesson template

The five component parts of the template above include:

- You Will Learn – briefly lists, in student friendly language, the instructional outcomes for the lesson;
- You Should Know – lists, and when necessary elaborates on, knowledge and skills students are expected to have mastered prior to the lesson;
- Lesson – is self-explanatory and may be broken into multiple pages;
- Activities – contains further instructional events the student that students need to carry out in order to master the lesson outcomes; and
- Test Yourself – offers an opportunity for the student to gauge the degree to which the outcomes were achieved. (Centre for Distance Learning and Innovation, 2003, p. 12)

In addition to the course web pages, teachers regularly utilize the course calendar to post upcoming work and assignments, deadlines, and a notification for quizzes and tests. Teachers also regularly use the internal e-mail system and discussion forums to communicate with their students outside of their synchronous class time (known as online time, as opposed to the non-synchronous or asynchronous sessions which are known as offline time).

The CDLI participates in the Tutoring for Tuition program. Through their participation, the CDLI provided senior secondary and post-secondary students in 21 different subject areas that are available for synchronous tutoring using the *Elluminate Live* software for two hours each day outside of the traditional school day (i.e., after 3:00 p.m. on weekdays). The CDLI has also developed a series of 50-

100 multimedia learning clips per course, for eleven courses that are evaluated with year-end standardized public examinations. These learning clips were developed by practicing classroom teachers and have been designed to provide a thorough review to complement in-class preparations for the public exams. Finally, the CDLI has created additional learning clips for four public exam courses based upon the June 2004 public exam and for five public exam courses based upon the June 2005 public exam, along with resource course webs for two additional grade 10 courses.

At the school level, each school has one teacher who is assigned with responsibility of maintaining the computers in the school, including up to six CDLI computers, and all of the necessary software and hardware for the students to be able to access the aspects of their web-based courses. The CDLI also arranged for all schools that have students in courses offered by the CDLI to have ADSL, cable modem, frame relay, or high speed satellite (two-way) connections to ensure adequate bandwidth. In addition to the school-based teacher responsible for technology in each school, schools are also responsible for having a mediating teacher (known as the m-teacher) or mediating team (known as the m-team). The goal of this m-teacher or m-team is to provide supervision and support (although not academic support) to the students enrolled in CDLI courses. These are the teachers who proctor tests and exams, monitor student attendance and behavior, and provide general support in gaining the independent learning and self-motivation skills that may be needed to succeed in the CDLI environment.

To date, there has been little research conducted on how these mediating responsibilities are actually being implemented at the school level. Mulcahy (2002), among other things, attempted to conceptualize what the introduction of the responsibilities outlined by the ministerial panel might look like at the school level. More specifically, Mulcahy was concerned that with less student selectivity, an increasing need for distance education by rural schools, and the nature of the proposed delivery, teachers who were given mediating responsibilities for the CDLI would play a critical role in the success of this new initiative. He was further concerned by the fact the original vision failed to consider the additional workload, without the "provision of time during the instructional day", that would be placed on these rural teachers. This concern was well founded, at least during the initial field test of the CDLI. During that first year, Barbour and Mulcahy (2004) found that teachers in one district reported that "quite a burden [was] placed upon them due to the wide range of duties and time commitment associated with these new responsibilities" (Conclusion section, ¶ 2). They also found that these teachers reported that they had provided technical and instruction assistance, both of which were outside of the original vision of the ministerial panel.

Unfortunately, there has been no further research exploring how these additional responsibilities are managed at the school level since that first year of operation. At one rural school that I recently visited, these responsibilities fell upon the m-team – a group of individuals who included the school's principal, technology teacher, secretary, custodian, and a student enrolled in the CDLI (who holds the title of e-tutor). The e-tutor assisted the administrator, who manages the school's CDLI program. The e-tutor also assisted the technology teacher who maintained the CDLI technology. The administrator was the person primarily responsible for the supervision of the CDLI students. However, supervision was usually limited to random visits to the distance education room to simply "check in" on the students. The exception to this is when the students were required to complete tests and examinations. The more formal supervision, or proctoring of these assessments, was typically completed by the administrator, although given that the administrator also had half time teaching responsibilities, any teacher who had a preparation or non-contact period when the assessment was being conducted could have been drafted into supervising. If there was no teacher available, the school's part-time secretary may have been called upon to fulfill this responsibility. However, as the secretary was only at the school for the first half of the school day, sometimes the CDLI students had to complete their assessment in the same classroom as the administrator while he was teaching own of his own courses to a separate group of students. In fact, during my month long visit on two occasions I volunteered to supervise assessments because no other teacher was available at the time.

The physical space in which the students take these web-based courses varies from school to school. In some schools the CDLI computers are placed in the back of a teacher's classroom. This allows for the students to be under direct supervision while they are engaged in their online learning. In most instances when this has been done, there is usually some form of division between the distance

education students and the rest of the classroom, as not to allow for the conversation that may take place during the synchronous classes to minimize the potential for in-class disruptions. There are other instances where the CDLI computers are placed in the school's learning resource centre, library, or existing computer lab. For schools that have had a history of distance education, particularly those who had students complete courses through the former Tele-medicine/TETRA system, it is common that there is a separate distance education room set aside for these students to complete their web-based courses.

This was the case for the school that I recently visited, where the distance education room was located in close proximity to the main office. As you walked into the distance education room, to the left was the main area with computers and other equipment and directly ahead was an entrance to this storage area. In the storage area, there were videos, books, numerous copies of old textbooks, distance education handbooks from the old Tele-medicine/TETRA courses, maps and posters, and a variety of other instructional materials. The main portion of the distance education room contained nine computer workstations – all of which had been provided by the CDLI, along with an all-in-one printer/fax/photocopier/scanner and a large television with what appeared to be video-conferencing equipment on top. It appeared that most students had their own machines, with only a couple of students sharing machines. Next to the door were little hooks for all of their personal headsets for the synchronous classes, granted most of the headsets were simply laid next to the individual workstations. Along the wall in the corner with the video-conferencing equipment were two bookshelves with VHS tapes, a number of French-English dictionaries, regular dictionaries, a thesaurus, and binders. On the other wall in this corner was a whiteboard, which is located behind two of the workstations, in addition to the video-conferencing equipment. Essentially, the distance education room utilized by these twelve students was the best equipped, in terms of current technology and digital access, room in the entire school.

Today's Secondary Students

As with any technological innovation that is introduced into the classroom, there are concerns over how these changes will be used by both students and teachers. There are some who have argued the introduction of technology into schools has been a massive waste of money due to the fact that these technologies are so often underused or used in poor pedagogical ways (see Cuban, 2001; Noble, 2001; Postman, 2003). However, more recently there has been an almost constant discussion in popular media about the characteristics of this next, digital generation; and how technology has become an essential part of their lives and is necessary in order for these students to learn.

The covers of *Time* and *Newsweek* for the last week of March and first week of April 2006 in the both Canada and the United States read "Are Kids Too Wired for Their Own Good?" and "Putting the 'We" in Web" respectively. The idea that today's students are somehow different than previous generations due to their access to digital technology has become a common theme in both the popular media and has even being introduced in the academic literature (although there has been little actual research reported or conducted into these perceived differences, see Reeves and Oh (in press) for a great discussion of this point). Tapscott (1998) labeled these students the Net Generation. Basing his categorization on David Foote and Daniel Stoffman's 1996 book *Boom, Bust, and Echo*, Tapscott includes the echo generation, or those born after 1977, as being a part of this Net Generation. While Tapscott acknowledges that not all of those born during this time frame have access to the Internet, he claims that they all have "some degree of fluency with digital media" (p. 3).

Similar to Tapscott, Howe and Strauss (2000) have also given the next generation a label based on a specific date of birth: the millennials include all of those who were born in or after 1982. According to the authors, students born in this year were "the 'Babies on Board' of the early Reagan years, the 'Have You Hugged Your Child Today?' sixth graders of the early Clinton years, the teens of Columbine, and… the much-touted high school Class of 2000" (p. 3). The unique characteristics that Howe and Strauss ascribed to this group include:

They are more numerous, more affluent, better educated, and more ethnically diverse…. They are beginning to manifest a wide array of positive social habits that older Americans no longer associate with youth, including a focus on teamwork, achievement, modesty, and good conduct. (p. 3)

What is interesting is that Howe and Strauss made no mention of technology or the changes that have occurred in its pervasiveness during this generation of millennials. For Howe and Strauss the millennials were simply what comes next after Gen-X, in the same way the echo generation came after the bust generation for Foote.

An alternative to these two classification schemes was put forth by Dede (2005) in the popular media, who introduced his generation of neomillennials. Initially based upon his interest in how his own daughter interacted with technology when she would come home after school, Dede based this generational label upon a set of learning characteristics he believed made these students different. These characteristics included:

- fluency in multiple media and in simulation-based virtual settings,
- communal learning involving diverse, tacit, situated experience, with knowledge distributed across a community and a context as well as within an individual,
- a balance among experiential learning, guided mentoring, and collective reflection,
- expression through nonlinear, associational webs of representations, and
- co-design of learning experiences personalized to individual needs and preferences. (¶ 2)

The main difference with this classification was that it was based upon a set of learning characteristics and not on an artificial date. Neomillenials could include the generation of students described by Tapscott, Foote and Stoffman, and Howe and Strauss who are in educational institutions today, but could also include baby boomers, Generation X'ers, or the children of the echo.

While these various labels have been introduced over the past decade, most have not caught on outside of their immediate fields, with the exception of the label "digital native". Prensky (2001) labeled this up-coming generation digital natives, as he felt that they "are all 'native speakers' of the digital language of computers, video games and the Internet" (¶ 5); those of us who are not native to this digital language are considered digital immigrants. Today's teenager has grown up with digital technology (e.g., cell phones, video games, computers, DVD players, video cameras, MP3 players) since birth, and according to Prensky (2006) the average youth, by the time they have graduated from college, has "spent fewer than 5,000 hours of their lives reading, but often more than 10,000 hours playing video games, another 10,000 on their cell phones, and more than 20,000 watching television" (pp. 27-28). While he didn't provide a specific date, like Tapscott and Howe and Strauss, Prensky alludes to the fact that this generation of digital natives began at a specific time; in the same way that an immigrant is one who comes to an existing place, these natives were born during the digital age.

While Dede's classification of neomillennials was based on a set of characteristics that people of any age can possess, one of the main limitations of the other authors was the use of a specific date or time period to define their label. For example, based upon Prensky's discussion, two of the defining characteristics of digital natives were how they use Internet technology and the ubiquitous nature of their cell phones to their daily lives. Unfortunately, poor access to both of these technologies limit youth in rural Newfoundland and Labrador from having the ability to utilize the Internet or cell phones, let alone have their generation defined by how they use them. Ignoring the socio-economic realities of rural Newfoundland and Labrador and assuming that these youth have access to a computer or cellular coverage is a poor assumption to make, given that most rural portions of the province are still limited to dial-up Internet access (usually at a speed of 33.6Kb/s to 56.4Kb/s with a limited modem pool). Due to this lack of access to both Internet and cell phone technology, rural youth in Newfoundland and Labrador can hardly be automatically defined as digital natives.

Conclusion

The development of virtual schooling in Newfoundland and Labrador, like many other jurisdictions across Canada and the United States, came about from as a necessity. Prior to the introduction of distance education, students in rural areas simply did not have equal access to the curriculum as their urban counterparts. Over the past decade the technology has changed to allow the province-wide audiographics system to develop into smaller web-based initiatives and, eventually, a province wide web-based virtual high school. This province-wide virtual school is providing a vital supplement to the educational opportunities of rural students.

However, unlike most jurisdictions in North America the rural populations in Newfoundland and Labrador do not have access to the same level of digital technology as their urban counterparts, which may render much of what is proliferated in the popular media as simply not being applicable to these rural students. This apparent rural digital divide also has implications for the design and delivery of web-based learning in the province. Historically, this rural digital divide meant the method of delivery limited the type of student who was able to access these learning opportunities to only a very select group of students, for example the student described by Stevens (1999) who had a computer in his room, a parent who was a teacher, and two siblings receiving a graduate education. Methods of both synchronous and asynchronous instruction that rely upon low bandwidth technologies so students can access these opportunities, both at school and at home (because there does exist a further divide between the level of technical access in school and the level of access at home), are necessary. In addition, support systems that students can access during and outside of school times also need to be implemented, to ensure that rural students have access to a comparable quality of education as their urban counterparts.

At present it appears that the CDLI is taking measure to address many of these concerns. Unlike many virtual schools throughout North America that have full-time students, students taking courses through the CDLI must reside in a school and are limited to half of their curriculum from the CDLI and half from teachers in the school. The CDLI has also provided numerous asynchronous learning objects and multiple sessions, both after school and during the evenings, where synchronous tutors are available to support students in their learning. In addition, the CDLI has already developed a number of courses that traditionally target lower ability students or students with a full range of abilities, such as courses in art. However, in many of these rural areas there still exists a significant divide between the technology, and particularly bandwidth, that students have access to in school compared to what they have access to at home – in some cases limiting the student's ability to even access certain online components of their courses at home. The CDLI, most likely in partnership with the provincial and federal governments (and even private enterprise), will need to address the issue bandwidth in rural areas or determine a method of course delivery that is reliant upon bandwidth beyond what is typically available from a dial-up connection.

In this article, I have attempted to trace the roots of this problem of rural schooling in Newfoundland and Labrador and how these distance education opportunities have been implemented to address this problem. I have also attempted to describe how the various distance education programs have evolved over the past two decades to adapt to the changes in technology. Finally, I hope that I have left the reader with the caution that while there is much in the media about the nature of today's students and how that may be ideally suited to a virtual school environment, this description is far from the reality of students found in rural Newfoundland and Labrador.

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