

# ***The Evolution of E-Learning in Small Rural Schools in Newfoundland and Labrador***

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## Preface

As an educator in the primary, elementary and secondary school system for more than thirty years, I have been an advocate for students enrolled in small rural schools in Newfoundland and Labrador. In fact, my interest in the need to enhance the equality of educational opportunities for students enrolled in small rural schools had been greatly influenced by my own schooling (Grades I - IX) in multi-graded classrooms. In the early 1950s, I began my schooling at the Salvation Army one-room all-grade school located in the small rural community of Cottrell's Cove on the west shore of the New Bay Peninsula, Notre Dame Bay. During the mid-1950s and early 1960s, I continued my schooling up to the end of Grade IX at the Salvation Army two-room all-grade school in Cottrell's Cove. Despite having skipped Grade VIII, I was successful in passing my Public Examinations and attaining a Grade IX Diploma. As a result of a Bursary Program implemented by the Department of Education in the late 1950s, I had the opportunity to complete my secondary education at the Salvation Army Regional High School in Botwood. In fact, I was successful in passing my Public Examinations and attaining a Grade XI Matriculation Diploma in June 1964.

During the summer of 1964, I attended Probationer's Summer School at the old Prince of Wales Collegiate on LeMarchant Road, St. John's. As a result, I was awarded a Probationer's Teaching Licence by the Salvation Army Board of Examiners and appointed as the Principal of the Salvation Army two-room all-grade school in the community of Little Bay Islands, Notre Dame Bay, by the Superintendent for Salvation Army Schools. During the 1964-65 school year, I taught all subjects to the students enrolled in Grades VII to XI. After completing my first-year of post-secondary education at Memorial University during the 1965-66 academic year, I returned as Principal of the Salvation Army two-room all-grade school at Little Bay Islands for the 1966-67 school year. As a matter of fact, my two years as the Principal of the Salvation Army two-room all-grade school at Little Bay Islands had a profound impact on the remainder of my professional career in education.

In the 1967-68 and 1968-69 academic years, I continued my studies at Memorial University in order to attain the degree of Bachelor of Arts (Education). In April 1969, I accepted a teaching position at the Baie Verte Central High School which was under the jurisdiction of the Baie Verte District Amalgamated School Board. As a result of the integration of school boards on July 1, 1969, the administration of the Baie Verte Central High School came under the jurisdiction of the Green Bay Integrated School Board. The Baie Verte Central High School which was later renamed Beothuk Collegiate (currently Baie Verte Collegiate) included

students enrolled in Grades VII to XI inclusive. The majority of the students were bussed from the small rural communities of Seal Cove, Wild Cove, Pacquet, Woodstock, Ming's Bight, Burlington and Smith's Harbour. In addition, some students came from Westport for Grades IX, X and XI as a result of the Bursary Program. In September 1969, I was assigned to teach Mathematics in Grades VII to XI at Baie Verte Central High School and I continued as a Mathematics teacher until June 1981. I was also appointed as the Head of the Mathematics Department at Beothuk Collegiate, effective September 1, 1973. In the mid-1970s, I was also assigned to teach Physics to students enrolled in Grades X and XI. Meanwhile, the majority of students who enrolled in Physics as well as Honours Mathematics (Grades IX, X and XI) resided in Baie Verte which was a mining town. Consequently, my thinking and decision-making related to the need to enhance the equality of educational opportunities for students residing in small rural communities was greatly influenced as a result of my teaching assignments at Beothuk Collegiate during the 1970s.

In the early 1970s, I continued my studies at Memorial University in order to attain a Bachelor of Arts (Education) by enrolling in courses offered during Summer Sessions as well as enrolling in off-campus courses during the Fall and Winter Semesters through the School of Continuing Education. On October 20, 1973, I attended the Fall Convocation and was admitted to the degree of Bachelor of Arts (Education). During the mid-1970s, I continued my studies by enrolling in courses offered during Summer Sessions as well as enrolling in off-campus courses during the Fall and Winter Semesters through the School of Continuing Education. As a result, I was awarded a Grade V Teaching Certificate on August 1, 1978. As a result of my experiences with off-campus courses, I acquired an appreciation for the amount of self-discipline and independent study required in order to be successful when learning at a distance.

On September 1, 1981, I accepted a position as Mathematics Consultant in the Division of Instruction (Curriculum Section) of the Department of Education. As the Mathematics Consultant, I was responsible for the development and/or revision of all Mathematics courses in the primary, elementary, intermediate and senior high school programs (K-12) including the evaluation of learning resources. In addition, I was responsible for coordinating and/or facilitating the implementation of changes in the Mathematics curriculum in collaboration with the professional staff at School District Offices. During the late 1980s, I had considerable involvement in Small Rural Schools Distance Learning Project including researching and recommending a "Distance Learning Model" for small rural schools offering the Senior High School Program in Newfoundland and Labrador. As the Chairperson of the Distance Education Working Group, I

facilitated the development of policies and procedures related to the development and delivery of senior high school courses to students in small rural schools. In fact, these policies and procedures were used by the administration of the Department of Education for more than a decade.

In September 1989, I accepted a position as Manager of the Curriculum and Learning Resources Section within the Program Development Division of the Department of Education. As a result, I was responsible for the administration and coordination of curriculum development activities in all subject areas (with the exception of French and Religious Education) in the primary, elementary, intermediate and senior high school programs (K-12). In collaboration with the Director of Program Development, I facilitated and/or coordinated a number of strategic curriculum initiatives such as the Lighthouse Schools Project and the Technology in Learning Environments Project. In addition to my responsibilities related to curriculum development and implementation, I was assigned the responsibility for administering and coordinating the Distance Learning Program effective April 1, 1992 until August 31, 1997.

On September 1, 1997, I was seconded to the position of Managing Director of the Centre for TeleLearning and Rural Education in the Faculty of Education, Memorial University of Newfoundland, until my retirement on December 31, 2000. In collaboration with the Chair of TeleLearning and Rural Education, the Associate Dean of Graduate Studies and Research and other members of the Faculty of Education, I was able to access a significant amount of external funding for a variety of research and development initiatives in the areas of “TeleLearning” and “Rural Education”. As a result, the Centre for TeleLearning and Rural Education acted as a catalyst in the Faculty of Education for research and development with a special focus on small schools in rural and remote communities in Newfoundland and Labrador.

In summary, this “Foundation Paper” entitled ***The Evolution of E-Learning in Small Rural Schools in Newfoundland and Labrador*** reflects my educational journey as a student in a multi-graded classroom and a regional high school (Grades IX, X, & XI); a student both on-campus and off-campus at Memorial University; a Principal of a two-room all-grade school; a Mathematics and Physics Teacher in a central high school (Grades VII to XI); a Mathematics Consultant and a Manager of Curriculum, Learning Resources and Distance Learning in the Department of Education; and a Managing Director of the Centre for TeleLearning and Rural Education in the Faculty of Education, Memorial University. Meanwhile, this “Foundation Paper” is based on a significant number of public reports and other publications.

## 1. The Senior High School Program in Newfoundland and Labrador – An Historical Overview

On October 17, 1933, a Commission of Enquiry into the Curriculum of the Colleges and Schools in Newfoundland was appointed “to consider the present curriculum of the Public Schools in Newfoundland and to make such suggestions and recommendations as they may deem desirable”. The Report of the Commission of Enquiry into the Curriculum was completed and signed on May 19, 1934, which was three months after the Commission of Government assumed office on February 16, 1934. The Report of the Commission of Inquiry into the Curriculum contained a number of major recommendations including an 8-4 curriculum design. The Commission recommended that a permanent committee be appointed to draw up a detailed curriculum of courses of study first for Grades I-VIII and then for Grades IX-XII. In fact, the Commission recommended “that Grades IX and X be completely separated, and that these with Grades XI and XII should form a four year course with no overlapping, and that in each of these grades pupils be required to study not less than five and not more than seven subjects with English (Language and Literature) as the only compulsory subject”. However, the result was an 8-3 curriculum design as no course of study was ever developed for Grade XII.<sup>1</sup>

On December 10, 1934, a Curriculum Committee was appointed to develop a new curriculum for the schools in Newfoundland and Labrador. Andrews (1985) noted that the new curriculum up to Grade IX developed by the Nova Scotia Curriculum Committee was used extensively by the Curriculum Committee. The organization of the Nova Scotia Curriculum was the 6-3-3 curriculum design, which divides the twelve grades into three groups – the Elementary School (Grades I-VI), the Junior High School (Grades VII-IX) and the Senior High School (X-XII). In fact, the first two sections of the Introduction to the Curriculum for Newfoundland Schools entitled “The Aims of Public Education” and “Essential Conditions and Activities” were identical with those in the Curriculum for Nova Scotia Schools with the exception of the substitution of the word “Newfoundland” for the word “Nova Scotia”. However, there was a very great difference in the third section entitled “Organization of Grades”, as the Curriculum Committee recommended that each child should have eight years of elementary education and that Grade IX should mark the beginning of Senior High School.<sup>2</sup>

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<sup>1</sup> Andrews, R. L. *Integration and Other Developments in Newfoundland Education, 1915-1949*. St. John’s: Harry Cuff Publications Ltd., 1985.

<sup>2</sup> Ibid

*In fact, the children in the Newfoundland schools were being offered a “bastardized” version of the program introduced in the schools in Nova Scotia in September, 1933. They were deprived of the Intermediate or Junior High School program which the Nova Scotia Committee (and Government) regarded as the most important of the three divisions, and they were not offered a Grade XII course in the High School program. The consequences of the failure to introduce these two very important changes will never be fully realized. (Andrews 1985)<sup>3</sup>*

Meanwhile, the Commission of Government began the implementation of the “New Curriculum” in Grades I to VIII during the 1936-37 school year. In the late 1930s, it appears that the “New Curriculum” in Grades IX to XI was implemented with a considerable number of challenges according to the Annual Report submitted to the Secretary of Education by R. L. Andrews, Supervising Inspector, for the year ending on June 30, 1941.<sup>4</sup> For more than forty years, this 8-3 curriculum design implemented in the late 1930s for Newfoundland and Labrador schools remained unchanged until September 1981 when the Department of Education began to implement the Reorganized Senior High School Program.

After Newfoundland and Labrador became the tenth province of Canada on March 31, 1949, there were a number of reports and recommendations regarding the design of the school curriculum, in particular, the Senior High School Program which consisted of Grades IX, X and XI. In fact, there were a significant number of recommendations made to the Department of Education regarding the need to implement a 6-3-3 curriculum design including the development of a course of study for Grade XII as well as the reorganization of Grades VII, VIII and IX as a Junior High School Program like other Canadian provinces.

In September 1951, the Government of Newfoundland appointed a special interdenominational committee to survey the educational system. The report of the committee articulated four basic principles including the principle that “there is a difference between elementary and high school education and that this difference is such that high schools should be separate from elementary schools, that the methods of instruction should be different and that the training courses for the teachers should be different.”<sup>5</sup> In addition, the committee made a comparison of the difficulty of the content of some of the courses in Grades X and XI that were offered in Newfoundland and Labrador schools with the courses

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<sup>3</sup> Ibid, p.185

<sup>4</sup> Ibid

<sup>5</sup> Andrews, R. L. *Integration and Other Developments in Newfoundland Education, 1949 - 1975*. St. John's: Harry Cuff Publications Ltd., 1985.

offered in Nova Scotia schools and found that the content of courses in Grade XI French, Physics and Trigonometry were almost identical with the Grade XII French, Physics and Trigonometry offered in Nova Scotia schools. Furthermore, one of the recommendations contained in the report stated “that a High School Course, to be known as Grades X, XI and XII be constituted with three year courses in English Literature, English Language, Algebra, Geometry, Latin, French, German, Spanish, History, Geography, Physics, Chemistry and Biology and other subjects as circumstances permit.”<sup>6</sup>

On May 21, 1958, a resolution from the Advisory Committee on Education recommended the introduction of a twelve-year curriculum. As a result, there was considerable collaboration between Memorial University, the Newfoundland Teachers’ Association (NTA) and the Department of Education regarding the design and development of Grade XII during the 1958-59 school year. In fact, there was a special Grade XII Committee composed of representatives from Memorial University, the NTA and the Department of Education which made recommendations to the Council of Education on February 12, 1959, regarding the curriculum design for Grade XII and the structure of a new senior high school program. It appears that there were further deliberations by the Council of Education on September 25 and October 7, 1959; however, Andrews (1985) concluded:

*It was quite apparent that the introduction of Grade XII was not considered a matter of great urgency at that time. In fact for the next twenty years hundreds of young people were admitted to the University who were totally unprepared to meet the demands of University life because of physical and social immaturity as well as inadequate academic preparation.*<sup>7</sup>

On November 3-7, 1958, the Department of Education held a major conference on education to obtain a cross-section of opinion (professional and lay) on existing educational problems and to obtain, if possible, recommendations for their solution. One of the six crucial educational problems included on the agenda was the “Diversification of the Curriculum”. There was considerable interest in this topic with a significant number of submissions by institutions and individuals. In all, the Conference adopted fifteen resolutions on the diversification of the curriculum. During the discussions on the diversification of the curriculum, there was reference again to the need for Grade XII. In fact, three of the resolutions dealt in one way or another with the introduction of Grade XII.

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<sup>6</sup> Ibid.

<sup>7</sup> Ibid, p.168

- Resolved that this Conference recommend that Grade XII be introduced and that a definite date be set for its introduction.
- Resolved that the Curriculum of Grade XII be drawn up through the co-operation of the Newfoundland Teachers' Association, the Department of Education and the University.
- Resolved that Memorial University be asked to recognize Grade XII courses for the purpose of credit towards a Bachelor's Degree, subject to any modifications the University might deem necessary to bring such courses up to standards required by the University.<sup>8</sup>

One of the General Resolutions submitted to the Conference on Education was a recommendation that the Government of Newfoundland appoint a Royal Commission to enquire into the existing state of education in the Province and to make recommendations with regard to its future organization and development at all levels. Six years later, on December 1, 1964, the Premier announced the appointment of a Royal Commission on Education and Youth under the chairmanship of Dr. Philip J. Warren. On January 15, 1967, the Royal Commission on Education and Youth submitted Volume One of its Report and on October 23, 1967, Volume Two of its Report was submitted. The school curriculum was dealt with at length and in depth in Volume One of the Commission's Report. In fact, the Commission made 175 recommendations on the subject of "the school curriculum".

The Report of the Royal Commission on Education and Youth, Volume One, discussed the high school curriculum in considerable detail and incorporated many of the proposals contained in a Report of the Provincial Curriculum Committee. In fact, the Royal Commission made 24 recommendations related to the high school curriculum; however, it did not recommend the introduction of Grade XII. The Commission favoured the establishment of two-year regional colleges in the Province for students intending to proceed to university. Meanwhile, the Commission's views were contained in Volume Two of its Report:

*The Commission favours the establishment of two-year colleges in the Province. It believes that this solution is preferable to the addition of Grade XII, primarily because it would be difficult, financially and otherwise, for many local school authorities to provide adequate educational facilities to enable Grade XII to be properly taught. Many boards find it impossible to provide the physical facilities and instruction necessary for Grades IX, X, and XI. It is our belief that education beyond Grade XI would be handled more efficiently by a more centralized authority.*<sup>9</sup>

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<sup>8</sup> Ibid, p.165

<sup>9</sup> **Report of the Royal Commission on Education and Youth**, Volume Two, (1968). P.J. Warren, Chairman. St. John's: Government of Newfoundland and Labrador, P. 97.

Andrews (1985) indicated that he felt that the implementation of a third year (Grade XII) in the senior high school program would be postponed for many more years as a result of the recommendations related to the establishment of two-year regional colleges. He was also very disappointed that the Royal Commission didn't recommended the 6-3-3 curriculum design that could have established a framework within which some order might have been restored out of the chaos created by the introduction of the "New Curriculum" in 1935.

*I felt that this Commission had lost sight of the function of the Junior High School in the development of children, as had the Curriculum Commission of 1933, and that they had also failed to appreciate fully the implications contained in the statement in the Report that "Grade XII would provide another year in which students could mature and strengthen their academic background before going on to university".<sup>10</sup>*

On February 19, 1968, Memorial University announced that a "Foundation Program" would be launched in September 1968 to bridge the gap between high school and the University. It was assumed that two-thirds of the first-year students would enter the Foundation Program "only in subjects of apparent weakness" or for subjects not offered in their high school program. The Foundation courses were to include Mathematics, English, French and the Physical Sciences. Andrews (1985) was concerned that the Foundation Program might be regarded as a permanent solution to the problem caused by the lack of a Grade XII as an integral part of the senior high school program in Newfoundland and Labrador.<sup>11</sup>

In the late 1970s, the Minister of Education appointed an Advisory Committee to examine the feasibility of reorganizing the senior high school program including the introduction of Grade XII. During the 1977-78 school year, the **Report of the Minister's Advisory Committee on Grade 12** was completed and submitted to the Minister of Education. In essence, the Advisory Committee recommended that the senior high school be completely reorganized and include three years of study to be known as Levels I, II and III (Grades X, XI and XII). The Advisory Committee also recommended that the senior high school curriculum be designed using a credit system with one-credit and two-credit courses.<sup>12</sup> This was the greatest change in the senior high school curriculum since the implementation of the "New Curriculum" in the late 1930s.

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<sup>10</sup> Andrews, R. L. *Integration and Other Developments in Newfoundland Education, 1949 - 1975*. St. John's: Harry Cuff Publications Ltd., 1985, p. 258.

<sup>11</sup> Ibid

<sup>12</sup> Department of Education. *Report of the Minister's Advisory Committee on Grade 12, 1977-78 School Year*. St. John's: Government of Newfoundland and Labrador.

During the 1977-1978 school year, the Government of Newfoundland and Labrador established a Task Force on Education to examine the quality of education within the context of declining enrolments within the primary, elementary and secondary school system. The Task Force (Crocker, R. K. & Riggs, F. T.) submitted their Final Report, ***Improving the Quality of Education: Challenge and Opportunity***, on April 25, 1979. The Task Force examined the primary, elementary and secondary school curriculum in considerable detail and made **eleven** recommendations. In fact, the Task Force endorsed the recommendations of the Minister's Advisory Committee on Grade 12 and made specific suggestions and recommendations regarding the structure and organization of a senior high school program.<sup>13</sup> Specifically, the Task Force made the following recommendation:

*That the decision to introduce grade 12 be upheld, and that grade 12 be considered an integral part of a revised secondary school program, but that the final decision on the date of implementation be made only after substantial progress has been made on program development.*<sup>14</sup>

Meanwhile, the Task Force on Education also recommended that the senior high school program be organized using a credit system. Specifically, the Task Force made the following recommendation:

*That the senior high school program be organized along the line of a credit system, with courses no longer directly identified with grade levels, that two year course sequences be devised to permit such courses to be taken in the first and second or the second and third years, and that courses be offered in alternate years where necessary to increase flexibility in the secondary school schedule.*<sup>15</sup>

In August 1979, a Sub-committee of the Minister's Advisory Committee submitted a report on the reorganized of the senior high school program. In fact, this document provided the curriculum framework for the "Reorganized Senior High School Program". Specifically, the Sub-committee recommended that the "Reorganized Senior High School Program" be anchored in ***The Aims of Public Education for Newfoundland and Labrador***. As a result, the Sub-committee recommended five categories of courses: basic skills, heritage studies, citizenship education, personal development, and specialized studies. The Sub-committee also listed the subject areas that would be used for course development. They were as follows: Art, Business Education, English, Family

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<sup>13</sup> Crocker, R.K. & Riggs, F.T. ***Improving the Quality of Education: Challenge and Opportunity***. Final Report of the Task Force on Education, April 25, 1979. St. John's: Government of Newfoundland and Labrador.

<sup>14</sup> Ibid, p.131

<sup>15</sup> Ibid, p.132

Studies, French, Guidance, Health, Industrial Education, Mathematics, Music, Physical Education, Religious Education, Science, Social Studies and Theatre Arts. In addition, the Sub-committee articulated the structure of the credit system with one-credit courses to be developed on the basis of 55-60 hours of instruction and two-credit courses to be developed on the basis of 110-120 hours of instruction. Furthermore, the Sub-committee recommended the Minimum Graduation Requirements within the context of the credit system.<sup>16</sup>

During the 1979-80 and 1980-81 school years, the Department of Education was engaged in a significant number of planning and development activities related to the “Reorganized Senior High School Program”. In October 1980, the Department of Education released a ***Handbook for Senior High Schools in Newfoundland and Labrador***. This was a comprehensive document that was intended mainly for school administrators and school district office staff who were involved in the implementation of the “Reorganized Senior High School Program”.<sup>17</sup>

In the 1980-81 school year, the Division of Instruction of the Department of Education began the revision a number of courses as well as the development of new courses for implementation in the 1981-82 school year. During the 1981-82, 1982-83 and 1983-83 school years, the Division of Instruction continued the revision of a significant number of courses and the development of new courses as outlined in the ***Handbook for Senior High Schools in Newfoundland and Labrador***. In the first four years of the “Reorganized Senior High School Program”, forty-two (42) two-credit courses and sixty-two (62) one-credit courses were authorized. The ***Program of Studies, 1984-85*** listed a total of 104 courses including 12 religious education courses.<sup>18</sup> During the late 1980s, the Department of Education was responsible for maintaining ninety-two (92) courses and funding the learning resources for all 104 courses as per the School’s Act.

While some courses had been revised during the 1980s, the senior high school curriculum had not been reviewed holistically during the first decade of this major educational reform. As a result, the Program Development Division of the

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<sup>16</sup> Department of Education. ***Report of the Sub-committee on Reorganization***, August 1979. St. John’s: Government of Newfoundland and Labrador.

<sup>17</sup> Department of Education. ***Handbook for Senior High Schools in Newfoundland and Labrador***, October 1980. St. John’s: Government of Newfoundland and Labrador.

<sup>18</sup> Department of Education. ***Program of Studies, 1984-85***. St. John’s: Government of Newfoundland and Labrador.

Department of Education appointed an internal committee to conduct a comprehensive review of senior high school curriculum with the exception of French Immersion, French First Language and Religious Education courses during the 1991-92 school year. In October 1992, the Senior High School Curriculum Review Committee released its Report, ***The Senior High School Curriculum: A Decade Later, 1981-82 to 1991-92***.<sup>19</sup> The Senior High School Curriculum Review Committee made a number of significant recommendations in the context of new strategic curriculum initiatives such as Co-operative Education, Enterprise Education and Technology Education that were also endorsed by the Government of Newfoundland and Labrador in Strategic Economic Plan, ***CHANGE & CHALLENGE: A Strategic Economic Plan for Newfoundland and Labrador***, which was released in June 1992.<sup>20</sup>

In the late 1990s, the senior high school curriculum has undergone major revisions in order to reflect ***The Atlantic Canada Framework for Essential Graduation Learnings in Schools***<sup>21</sup> developed by the Atlantic Provinces Education Foundation. Specifically, all courses were revised based on an outcomes-based curriculum development model in the context of the Essential Graduation Learnings: Aesthetic Expression; Citizenship; Communication; Personal Development; Problem Solving; Technological Competence; and Spiritual and Moral Development. Meanwhile, a common **core** curriculum in English Language Arts, Mathematics and Science was developed for Anglophone students in the Atlantic Canada.

The implementation of these major curricula changes in English Language Arts, Mathematics, Science, and Social Studies began in September 2003. The ***Senior High School Certification Handbook, School Year 2003-2004***<sup>22</sup> included a list of courses in the following subject areas: Art; Co-operative Education; Economic/Enterprise Education; English Language Arts; Family Studies; Foreign Language; Français Lange Première; French; General Education; Guidance; Mathematics; Music; Native Language; Physical

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<sup>19</sup> Department of Education. ***The Senior High School Curriculum: A Decade Later, 1981-82 to 1991-92***. Report of the Senior High School Curriculum Review Committee. October 1992.

<sup>20</sup> ***CHANGE & CHALLENGE: A Strategic Economic Plan for Newfoundland and Labrador***. St. John's: Government of Newfoundland and Labrador, June 1992.

<sup>21</sup> ***The Atlantic Canada Framework for Essential Graduation Learnings in Schools***. Newfoundland and Labrador version. Halifax: Atlantic Provinces Education Foundation, 1995.

<sup>22</sup> Department of Education. ***Senior High School Certification Handbook, School Year 2003-2004***. St. John's: Government of Newfoundland and Labrador. 2003.

Education; Religious Education; Science; Social Studies; and Technology Education.

## 2. The Implementation of the Reorganized Senior High School Program – Graduation Requirements

During the early 1980s, the implementation of the “Reorganized Senior High School Program” required significant financial and human resources. In fact, this was a major educational reform that involved a considerable amount of collaboration between the Department of Education and School District Offices. All schools that were offering the old high school program (Grades IX, X and XI) were challenged during the implementation phase as a result of the transition between the graded system and the credit system. In the 1980-81 school year, students enrolled in Grade IX were required to select courses for Levels I, II and III in order to meet the Minimum Graduation Requirements. During the 1980s, a Senior High School Diploma would be issued to a student who acquired a minimum of **36** credits in accordance with the following Minimum Graduation Requirements:

- Students had to acquire **21** credits in courses listed as satisfying a **core** requirement. The following credits had to be included in the **21** credits:
  - ❑ Cultural Heritage – 2 credits
  - ❑ Democracy – 1 credit
  - ❑ Canadian Economy or Canadian Law – 1 credit
  - ❑ English language - 3 credits
  - ❑ English literature - 4 credits
    - Literary heritage - 2 credits
    - Thematic literature - 2 credits
  - ❑ Mathematics - 2 credits
  - ❑ Science - 2 credits
  - ❑ World Studies - 2 credits
  - ❑ 4 credits in at least two of the following areas:
    - Religious Education
    - Physical Education
    - Health
    - Music
    - Art
    - Performing Arts
    - Family studies
    - French

- Courses had to be chosen so that no more than **16** credits were selected from first-year courses (i.e., 1000-level courses) and at least **9** credits were selected from third-year courses (i.e., 3000-level courses).

On May 24, 1988, the Government of Newfoundland and Labrador appointed a Task Force on Mathematics and Science Education as a result of public concern over the levels of achievement and participation in mathematics and science programs, in particular, the senior high school mathematics and science programs. In its Final Report, ***Towards an Achieving Society***,<sup>23</sup> the Task Force made a recommendation related to the Graduation Requirements in Mathematics and Science. Specifically, the Task Force recommended:

*That the minimum requirement for high school graduation in both science and mathematics be increased from two to six credits.*<sup>24</sup>

As a result of this recommendation, the Department of Education appointed a committee to review the Graduation Requirements in the 1990-91 school year. The ***Report of the Graduation Requirements Committee for the Senior High School***<sup>25</sup> was completed in January 1992. As a result of the committee's recommendations, some changes in the Graduation Requirements were implemented in the 1992-93 school year.

During the early 1990s, the Royal Commission of Inquiry into the Delivery of Programs and Services in Primary, Elementary and Secondary Education investigated a number of issues and concerns related to the Senior High School Program and made a number of recommendations in its Final Report. Specifically, the Royal Commission recommended:

*That the Department of Education in consultation with school boards and post-secondary institutions, evaluate all aspects of the Senior High School Program with a view to ensuring that program goals are clearly defined, courses are logically sequenced, and the program is rigorous and challenging in all years.*<sup>26</sup>

As a result of this recommendation, the Department of Education began a comprehensive review of all aspects of the Senior High School Program. In the

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<sup>23</sup> Department of Education. ***Towards an Achieving Society***. Final Report of the Task Force on Mathematics and Science Education. St. John's: Government of Newfoundland and Labrador, May 1989.

<sup>24</sup> Ibid. p. 183

<sup>25</sup> Department of Education. ***Report of the Graduation Requirements Committee for the Senior High School***. St. John's: Government of Newfoundland and Labrador, January 1992.

<sup>26</sup> Royal Commission of Inquiry into the Delivery of Programs and Services in Primary, Elementary, Secondary Education. (1992). ***Our Children, Our Future***. St. John's: Government of Newfoundland and Labrador. p. 315

1995-96 school year, the Department of Education released ***Directions for Change: A Consultation Paper on the Senior High School Program***<sup>27</sup>. Subsequently, a Senior High School Advisory Committee was appointed to review all submissions and to make recommendations related to the structure of the program; curriculum development and delivery; changes in the subject areas; student support services; and student assessment. The Final Report, ***The Senior High School Program: New Directions for the 21<sup>st</sup> Century***,<sup>28</sup> included additional changes in the Graduation Requirements.

The implementation of these changes in the Graduation Requirements was scheduled to begin in September 1998 with the first graduates in June 2001. In the meantime, schools were encouraged to offer a program that exceeds the minimum Graduation Requirements and, where possible, provide students with the option of doing 42, 45, or 48 credits over a three-year period.<sup>29</sup> The majority of schools provide students with the option of doing 42 credits or 14 credits per year.

On August 19, 1999, the Government of Newfoundland and Labrador appointed a Ministerial Panel on Educational Delivery in the Classroom. The Ministerial Panel examined a number of issues and concerns related to student programming at the senior high school level such as student course selection and the number of credits required for graduation. In its Final Report, ***Supporting Learning***, the Ministerial Panel made a number of recommendations such as the following:

*That the personal development component of the graduation requirements be amended to include additional courses, including French and theatre arts.*<sup>30</sup>

Consequently, the Department of Education made further changes to the Graduation Requirements. Specifically, the Personal Development category was expanded to include courses in French and Theatre Arts as a result of the recommendations made by the Ministerial Panel on Educational Delivery in the Classroom.

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<sup>27</sup> Department of Education. ***Directions for Change: A Consultation Paper on the Senior High School Program***. St. John's: Government of Newfoundland and Labrador. 1995.

<sup>28</sup> Department of Education. ***The Senior High School Program: New Directions for the 21<sup>st</sup> Century***. St. John's: Government of Newfoundland and Labrador, 1996.

<sup>29</sup> Ibid. P. 7

<sup>30</sup> Department of Education. ***Supporting Learning***. Final Report of the Ministerial Panel on Educational Delivery in the Classroom. St. John's: Government of Newfoundland and Labrador. March 2000. P. 17

The current Graduation Requirements as outlined in the *Senior High School Certification Handbook, School Year 2007-08*,<sup>31</sup> have been revised on a number of occasions since the implementation of the Senior High School Program began in September 1981 as a result of recommendations made by the Task Force on Mathematics and Science Education, the Royal Commission and the Ministerial Panel.

The Graduation Requirements for the 2007-08 school year are as follows:

- Students have to acquire a minimum of **36** credits to graduate from the Newfoundland and Labrador school system. However, most students complete 14 credits each year for a total of 42 credits after three years. Credits must be completed to fulfill each of the subject area credit requirements from the following subject areas:
  - ❑ Language Arts – 8 credits
    - English Language Arts – 6 credits
    - Optional Language Arts – 2 credits
  - ❑ Mathematics – 4 credits
  - ❑ Science – 4 credits
  - ❑ Social Studies – 4 credits
    - World Studies – 2 credits
    - Canada Studies – 2 Credits
  - ❑ Career Education\* - 2 credits
  - ❑ Fine Arts – 2 credits
  - ❑ Physical Education – 2 credits
  - ❑ Other Required Credits – 4 credits
    - Enterprise Education
    - French
    - Religious Education
    - Technology Education
    - Family Studies\*\*
  - ❑ Any Subject Area – 6 credits

\*This requirement includes a community contribution component.

\*\* Students must complete courses from any **two** of the categories. However, students may use four French credits to fulfill this requirement.

Meanwhile, the *Senior High School Certification Handbook, School Year 2007-2008*, includes additional requirements related to the Graduation Requirements as follows:

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<sup>31</sup> Department of Education. *Senior High School Certification Handbook, School Year 2003-2004*. St. John's: Government of Newfoundland and Labrador.

- At least **20 of the total credits** must be obtained **beyond Level I**, and
- At least **9 of the total credits** must be **beyond Level II**. At least 5 of these credits must be obtained in the Newfoundland and Labrador Senior High School Program.
- A student cannot use more than 4 local course credits (including alternate courses) to contribute to the 36 credits to graduate.

### 3. The Challenges of Implementing the Reorganized Senior High School Program in Small Rural Schools

Historically, there have always been a significant number of small rural schools in Newfoundland and Labrador. One of the main reasons for the large number of small rural schools was the denominational system of education which existed in Newfoundland and Labrador since the *Education Act* of 1843 marked the beginning of legislative provisions for the denominational system of education by setting up a dual system of Protestant and Roman Catholic Schools. When the Colony joined Canada on March 31, 1949, there were 75,006 students enrolled in the primary, elementary and secondary school system which included Grades I to XI. Rowe (1976) examined the number and size of schools in Newfoundland and Labrador at the time of Confederation. For the school year ending on June 30, 1949, there were 1,187 schools in the province, which meant that the average enrolment was 63 students per school. There were 778 schools (65.5%) with only one teacher and there were 234 schools (19.7%) with two teachers. In fact, 1012 schools (85.2%) were one- and two-room schools. There were 70 schools having five or more classrooms and 21 schools with ten or more classrooms. There were 847 schools (71.4%) with students enrolled in grades above Grade VIII, and of this number 461 were one-room schools and 218 had only two rooms.<sup>32</sup> In general, small all-grade schools dominated the pattern of educational organization at the time of Confederation.

Meanwhile, the Royal Commission on Education and Youth conducted a detailed analysis of school size and school organization using the statistical information available at the Department of Education. In the 1964-65 school year, there were 1,266 schools in Newfoundland and Labrador and 845 ((67%) had fewer than four classrooms. There were 649 elementary schools and 415 (64%) of these schools had one or two classrooms. In addition, there were 516 all-grade schools and 271 (53%) of these schools also had one or two classrooms. The Royal Commission also analyzed data for central and regional high schools for the 1965-66 school year. Altogether, there were 104 such schools: 78 central and 26

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<sup>32</sup> Rowe, F. W. *Education and Culture in Newfoundland*, Toronto: Ryerson Press, 1976.

regional high schools. In all, some 55 of these central and regional high schools had fewer than 200 students, serving Grades VII to XI.<sup>33</sup>

In the late 1960s, there were 368 Roman Catholic schools; 383 Anglican schools; 308 United Church schools; 87 Salvation Army schools; 57 Pentecostal schools; 5 Seventh Day Adventist schools; and 61 Amalgamated schools prior to the consolidation of school districts in September 1969.<sup>34</sup> It should also be noted that the enrolment peaked at 162,818 students in the 1971-72 school year.

As a result of the consolidation of school districts and declining enrolments, a significant number of schools were consolidated or closed during the 1970s. In the 1981-82 school year, there were 145,185 students enrolled in 654 schools. There were 133 high schools and 202 all-grade schools which meant that 335 (51.2%) schools were offering the “Reorganized Senior High School Program.”<sup>35</sup> In fact, a significant number of the all-grade schools were small and located in rural or remote communities in Newfoundland and Labrador.

In the early 1980s, it was obvious that the “Reorganized Senior High School Program” was designed for students who were enrolled in the larger central and regional high schools in the province. The majority of these schools could offer a wide variety of the 104 courses that had been developed and these schools had a qualified staff of secondary teachers in most instances. The students in these schools were given an opportunity to select courses to match their abilities and interests as well as meet the Graduation Requirements.

Meanwhile, it was extremely challenging to implement the “Reorganized Senior High School Program” in many of the all-grade rural schools. In some instances, these small rural schools did not have the qualified teachers or facilities to offer some of the senior high school courses (e.g., Physics and Chemistry). In some schools there weren’t a sufficient number of students to justify offering the course/program (e.g., Advanced Mathematics). In fact, the majority of students in these small rural schools would only be able to enrol in the courses that would meet the minimum Graduation Requirement (i.e., 36 credits). As a result, the

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<sup>33</sup> **Report of the Royal Commission on Education and Youth**, Volume One, (1967). P.J. Warren, Chairman. St. John’s: Government of Newfoundland and Labrador.

<sup>34</sup> Ibid.

<sup>35</sup> Department of Education, Evaluation and Research Division. *Education Statistics*, March 1987. St. John’s: Government of Newfoundland and Labrador.

“Reorganized Senior High School Program” contributed to the inequality of educational opportunity that already existed between students in the larger urban schools and the smaller rural schools.

In the early 1980s, the Department of Education recognized that there were some serious challenges in small rural schools as a result of declining enrolments. In fact, the General Advisory Committee to the Minister of Education sponsored a symposium to discuss the implications of declining enrolments during the 1980-81 school year. Subsequently, the Department of Education commissioned Dr. Frank Riggs, Faculty of Education of Memorial University of Newfoundland, to conduct a study of small schools in the province in 1986. The Department of Education also appointed an Advisory Panel to assist Dr. Riggs. The focus of the Terms of Reference of the Small Schools Project was on school programs. The overall objective of the project was:

*To investigate problems peculiar to small schools with an aim toward developing proposals to enhance educational opportunities for students in these schools.*<sup>36</sup>

In January 1987, the ***Final Report of the SMALL SCHOOLS STUDY PROJECT*** was submitted in to the Minister of Education. The Final Report contained a recommendation which defined a “small school” based on the number of grades in the school. Recommendation 4.1 stated:

*That a “small school” be defined as*

- (a) each primary and elementary school in which the enrolment divided by the number of grades is not greater than twelve.*
- (b) each all-grade, central or regional high school in which the enrolment divided by twenty-five is not greater than the number of grades in the school.*<sup>37</sup>

As a result of this recommendation, the Department of Education made changes to the Schools Act (Teachers’ Salaries) Regulations, 1979, and provided an additional teaching unit to School Boards for each “small school” under its jurisdiction as identified in Recommendation 4.1(a) and two additional teaching units for each “small school” identified in Recommendation 4.1(b).

Meanwhile, the *Schools Act, 1997*, made special provisions for small rural schools that are referred to as “small necessarily existent schools”. The *Schools Act, 1997*, states that these schools must be maintained and operated because of isolation or because the students cannot reasonably be accommodated in

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<sup>36</sup> Department of Education. ***Report of the Small Schools Study Project***, January 1987. F.T. Riggs, Chairperson. St. John’s: Government of Newfoundland and Labrador. p.3

<sup>37</sup> Ibid. p. 38

another school. Furthermore, schools that are designated as “small necessarily existent schools” are entitled, by the *Schools Act, 1997*, to additional resources provided by the Department of Education.<sup>38</sup>

#### 4. The Small Rural Schools Distance Learning Project

The *Final Report of the SMALL SCHOOLS STUDY PROJECT* contained a number of recommendations related to the delivery of senior high school courses to students in small schools using distance education. Recommendations 3.4, 3.5, 3.6 and 3.7 stated:

*That by direct classroom teaching or by distance education, all senior 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 measures be taken to ensure that a course in high school chemistry level 2 [Grade 12] and a course in high school physics level 2 [Grade 12] are available to small high schools by September 1987. Consideration should be given to delivery by computers, audio-video tapes or by other means of distance education.*

*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.<sup>39</sup>*

As a result of these recommendations made by the Small Schools Study Project, the Department of Education began researching a “Distance Learning Model” during the winter/spring of 1987. The Senior Executive of the Department of Education assigned Doug Young, Special Education Consultant, and Wilbert Boone, Mathematics Consultant, to research and recommend a “Distance Learning Model” for small rural schools offering the “Reorganized Senior High School Program” in Newfoundland and Labrador. An important component of the research was a comprehensive examination of distance learning models used in other Canadian Provinces. In addition, Young and Boone travelled to British Columbia, Alberta and Ontario to visit distance learning facilities and interview officials with the Ministries who were involved in the development and delivery of senior high school courses via distance learning technologies.

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<sup>38</sup> Department of Education. *The Schools Act, 1997*. Section: 77(2) and Section 77(3). St. John’s: Government of Newfoundland and Labrador.

<sup>39</sup> Department of Education. *Report of the Small Schools Study Project*, January 1987. F.T. Riggs, Chairperson. St. John’s: Government of Newfoundland and Labrador. p.26-28

Meanwhile, Young and Boone visited the Telemedicine Centre located in the Faculty of Medicine, Memorial University of Newfoundland, in order to become familiar with the technologies that were being used by the **Telemedicine and Educational Technology Resources Agency (TETRA)**. The Telemedicine Centre operated the TETRA Network which was an **analog** network that used a combination of audio and computer text, data and graphics commonly referred to as audio-graphics technology – microphones/speakers and telewriters (i.e., graphics tablets or electronic whiteboards). After consultations with the Director of the Telemedicine Centre, it appeared that the TETRA Network could be expanded to connect small rural schools in Newfoundland and Labrador. As a result, Young and Boone recommended that senior high school courses be delivered to small rural schools using the TETRA Network. In essence, they recommended **synchronous** teaching and learning in a **TeleLearning Environment**. In addition, they recommended that facsimile machines be provided to each of the small rural schools as an integral component of the distance learning model for the transmission of completed student assessment instruments. While distance learning traditionally meant the delivery of correspondence courses, the distance learning model recommended for small rural schools in Newfoundland and Labrador involved the use of telecommunications technologies that allowed for more immediate interaction between student and instructor as well as interaction between students in other communities.

In September 1987, the Department of Education established the **Small Rural Schools Distance Learning Project** in the area of Advanced Mathematics. The Advanced Mathematics Program (Advanced Mathematics 1201, 2201, 3201 and Calculus Readiness 3205) which was designed for senior high school students who planned to continue their education at a post-secondary institution, and, especially for those students who planned to attend university was selected due to the large number of schools unable to offer the program. In the meantime, the Department of Education seconded Edward Somerton, a senior high mathematics teacher from Mount Pearl Central High School, to prepare student handbooks and assessment instruments.

During the 1987-88 school year, Advanced Mathematics 1201 was designed as a pilot project to be taught to students in small rural schools using the TETRA Network. On April 11, 1988, the Honourable Loyola Hearn, Minister of Education, announced the Distance Education Pilot Project in a Ministerial Statement in the House of Assembly. Subsequently, the Department of Education requested that the Telemedicine Centre in collaboration with NewTel Communications Inc. expand the TETRA Network to thirteen rural and remote communities:

Beaumont, Brent's Cove, Change Islands, Cottrell's Cove, Gaultois, Hampden, Isle aux Morts, Lumsden, Mary's Harbour, McKays, Nain, Port Hope Simpson and Red Bay. During the summer of 1988, the small schools in these rural and remote communities were connected to the TETRA Network and provided with the appropriate audio-graphics technologies including a facsimile machine.

In the 1988-89 school year, the Department of Education seconded George Wright, a senior high mathematics teacher and Mathematics Department Head from Gander Collegiate on a one-half time basis as the first distance education instructor. On September 8, 1988, the Distance Education Pilot Project in Advanced Mathematics 1201 was officially launched by the Honourable Loyola Hearn, Minister of Education. Advanced Mathematics 1201 was taught to **36** students in **13** small schools throughout Newfoundland and Labrador. This marked the beginning of **e-learning** in the secondary school system in Newfoundland and Labrador. In fact, September 2008 will mark twenty years since the beginning of the delivery of senior high school courses to students in small rural schools using distance learning technologies.

In the meantime, the Evaluation and Research Division of the Department of Education conducted a comprehensive evaluation of the Distance Education Pilot Project in Advanced Mathematics 1201. During the 1988-89 school year, the distance education instructor also taught a group of students enrolled in Advanced Mathematics 1201 at Gander Collegiate which was an integral component of the evaluation process. In September 1989, the Evaluation and Research Division completed a report, ***Evaluation of the Distance Education Pilot Project – Advanced Mathematics 1201***, which contained thirty-five recommendations.<sup>40</sup>

On January 24, 1989, the Department of Education established a Distance Education Working Group to report to the Executive of the Department of Education on matters related to the further development and implementation of Distance Education in the context of the provincial secondary school system. In February 1990, the Report of the Distance Education Working Group, ***Distance Education: Towards Equality of Educational Opportunity***, was submitted to the Executive of the Department of Education. The recommendations contained in this report provided a direction for the Department of Education regarding the delivery of senior high school courses to students in small rural schools using

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<sup>40</sup> Department of Education, Division of Evaluation and Research. ***Evaluation of the Distance Education Pilot Project – Advanced Mathematics 1201***, September 1989. St. John's: Government of Newfoundland and Labrador.

distance learning technologies. In fact, these recommendations were translated into policies and procedures that were used by the administration of the Department of Education until September 1997.<sup>41</sup>

## 5. Enhancing the Equality of Educational Opportunity for Senior High School Students in Small Rural Schools

The challenge of providing equality of educational opportunity for senior high school students in small rural and remote schools has been a major concern of educational stakeholders in Newfoundland and Labrador. As a result of declining enrolments, many small rural schools have found it difficult to offer a Senior High School Program that meets the needs of all the students and enables them to attain the Graduation Requirements. In particular, students who are talented in mathematics and science have had limited options. Furthermore, there has been a lack of qualified teachers in many small rural schools, particularly in Physics and Chemistry.

In the Speech from the Throne presented at the opening of the House of Assembly on March 10, 1988, the Government of Newfoundland and Labrador announced its intention to establish a “Task Force to study the problems of mathematics and science achievement among students entering post-secondary institutions in the Province”. On May 24, 1988, Dr. Robert Crocker was appointed as a one-person Task Force on Mathematics and Science Education by the Minister of Education. In May 1989, Dr. Crocker submitted his Final Report, **Towards an Achieving Society**, which included a number of recommendations related to improving student achievement in senior high school mathematics. It is noteworthy that Dr. Crocker identified the lack of opportunities for students in small rural schools to enrol in courses in Advanced Mathematics, Chemistry and Physics.<sup>42</sup> Recommendation 7.4 stated:

*That beginning in September, 1989, schools encourage all Level I students who plan to continue to post-secondary education to take advanced mathematics.*<sup>43</sup>

As a result of the recommendations of the Task Force on Mathematics and Science Education, there were major increases in the number of schools offering

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<sup>41</sup> Department of Education. Report of the Distance Education Working Group. **Distance Education: Towards Equality of Educational Opportunity**, February 1990. St. John’s: Government of Newfoundland and Labrador.

<sup>42</sup> Department of Education. **Towards an Achieving Society**. Final Report of the Task Force on Mathematics and Science Education. St. John’s: Government of Newfoundland and Labrador, May 1989.

<sup>43</sup> Ibid. P.151

the Advanced Mathematics courses. In September 1983, there were only **57** schools offering Advanced Mathematics 3201 and the majority of these schools were the larger **urban** schools. The largest number of schools offering Advanced Mathematics 3201 was in the 1992-93 school year with **168** schools offering the course and **65** of these schools were small rural schools which offered the Advanced Mathematics courses via distance learning technologies.

Meanwhile, the number of students enrolled in the Advanced Mathematics courses increased dramatically during the early 1990s. In the 1983-84 school year, there were **953** students enrolled in Advanced Mathematics 3201. In the 1992-93 school year, there were **2,586** students, an increase of 270 percent, enrolled in Advanced Mathematics 3201 in an era of declining enrolments. It is also important to note that Advanced Mathematics 3201 was offered via distance learning technologies for the first time in September 1990. In essence, all senior high school students who wished to enrol in the Advanced Mathematics Program had the opportunity regardless of the size or location of their school.<sup>44</sup>

As indicated earlier, the Small Schools Study Project (January 1987) identified the need to offer Physics and Chemistry to senior high school students in small rural schools. In addition, the Task Force on Mathematics and Science recommended that senior high school students in small rural schools should have the opportunity to study Physics and Chemistry courses. Consequently, the Department of Education gave a high priority to the delivery of courses in Physics and Chemistry to senior high school students in small rural schools by using distance learning technologies.

The Chemistry Program (Chemistry 2202 and 3202) and the Physics Program (Physics 2204 and 3204) were designed for senior high school students who planned to continue their education at a post-secondary institution. During the 1980s, the Chemistry and Physics courses were offered mainly in the larger **urban** schools which had qualified teachers and science laboratories. Physics 2204 was offered to students in small rural schools via distance learning technologies for the first time in September 1992 and Physics 3204 in September 1993 respectively. In September 1983, there were **100** schools offering Physics 3204 and **152** schools offering the course in the 1993-94 school year. However, the highest enrolment in Physics 3204 was **3,765** students in the 1991-92 school year which was prior to the delivery of the Physics courses to students in small rural schools.

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<sup>44</sup> Department of Education, Evaluation and Research Division. *Education Statistics, 1983-84 to 1996-97 School Years*. St. John's: Government of Newfoundland and Labrador.

Meanwhile, Chemistry 2202 was offered to students in small rural schools via distance learning technologies for the first time in September 1995 and Chemistry 3202 in September 1996 respectively. In September 1983, there were **60** schools offering Chemistry 3202 and **122** offering the course in the 1996-97 school year. However, the highest enrolment in Chemistry 3202 was **3,699** students in the 1993-94 school year which was prior to the delivery of the Physics courses to students in small rural schools. During the early 1990s, it is worth noting that the student enrolments in Physics 2204 and 3204 increased; however, the student enrolments in Chemistry 2202 and 3202 increased dramatically.<sup>45</sup>

The teaching and learning of French in small rural schools in Newfoundland and Labrador was a concern of educators in the primary, elementary and secondary school system (K-12) for many years. Since French is one of the official languages of Canada, the Department of Education also gave priority to the delivery of courses in French to senior high school students in small rural schools via distance learning technologies.

The French Program (French 2100/2101, 3200 and 3201) was designed for senior high school students who planned to continue their education at a post-secondary institution. The French Program was offered mainly in the larger **urban** schools during the 1980s. The French Program was offered to students in small rural schools via distance learning technologies for the first time in September 1992. In September 1983, there were **60** schools offering French 3200 and **148** schools offering the course in the 1993-94 school year. However, the highest enrolment in French 3200 was **3,074** students in the 1987-88 school year despite offering the French program to students in small rural schools in the 1990s.<sup>46</sup>

During the early 1990s, there was substantial growth in distance learning in small rural schools in Newfoundland and Labrador. In fact, **85** small rural schools were connected to the TETRA Network from September 1988 to September 1996. However, the number of schools decreased as a result of school consolidation in some communities. In the 1996-97 school year, students enrolled in **74** small rural schools had the opportunity to study **11** courses in Advanced Mathematics, Physics, Chemistry and French via distance learning technologies. In September 1996, there were **1,020** course registrations. Students were being taught by **15.5**

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<sup>45</sup> Ibid.

<sup>46</sup> Ibid.

distance education instructors from **10** distance education instructor sites throughout the province in addition to the Distance Learning Centre located at the Telemedicine Centre, Faculty of Medicine, Memorial University of Newfoundland. Meanwhile, the Department of Education provided additional teacher allocations for the Distance Learning Program from September 1988 to September 1996.

In order to meet the demands for distance education and facilitate scheduling in two different time zones (Newfoundland Time and Atlantic Time), the Department of Education requested the Telemedicine Centre to regionalize the TETRA Network on the island of Newfoundland. As a result, the following regional networks (4-wire dedicated circuits were created:

- TETRA West A Network
- TETRA West B Network
- TETRA Central A Network
- TETRA Central B Network
- TETRA East A Network
- TETRA East B Network

In addition to these **six** regional TETRA Networks, there were **two** networks in Labrador (2-wire dial-up) to accommodate the different Time Zones:

- Labrador Network (Newfoundland Time)
- Labrador Network (Atlantic Time)

At the request of school districts, the Telemedicine Centre established **three** school district networks for schools which were **not** small as defined by the Department of Education. They were as follows:

- Avalon North Network (September 1991)
- Nova Consolidated Network (September 1991)
- Appalachia Network (September 1996)

In summary, the Small Rural Schools Distance Learning Project was designed to meet the needs of students in small rural and remote schools in Newfoundland and Labrador who were unable to enrol in senior high school courses that were considered as prerequisites for enrolling in post-secondary programs. In fact, the Small Rural Schools Distance Learning Project was designed to meet the following objectives:

- To extend the equality of educational opportunities to students, especially those in small schools, who have abilities and aptitudes in mathematics and science; and,
- To enhance the potential for success at the post-secondary level for students from rural areas who wish to pursue a scientific or technological career.<sup>47</sup>

## 6. The Administration and Coordination of the Small Rural Schools Distance Learning Program

Dr. Edna Turpin-Downey, Assistant Deputy Minister for Primary, Elementary and Secondary Education (K-12), Department of Education, was responsible for the administration and coordination of the **Small Rural Schools Distance Learning Project** from September 1987 to August 1989 with the assistance of Doug Young and Wilbert Boone. In September 1989, Dr. Wayne Oakley, Director of Program Development, Department of Education, became responsible for the administration and coordination of all aspects of the Distance Learning Program. Subsequently, Doug Young, Manager of the Distance Education/Learning Resources Section of the Program Development Division was assigned the responsibility for administering and coordinating the Distance Learning Program until March 31, 1992. Subsequently, Wilbert Boone, Manager of Curriculum and Learning Resources Section of the Program Development Division was assigned the responsibility for administering the Distance Learning Program with the assistance of a Coordinator effective April 1, 1992 until August 31, 1997. As a result of Wilbert Boone's secondment to the Centre for TeleLearning and Rural Education in the Faculty of Education, Memorial University of Newfoundland, Calvin Belbin, Coordinator of the Distance Learning Program, was assigned the responsibility for administering and coordinating the Distance Learning Program effective September 1, 1997.

Meanwhile, one of the Terms of Reference of the Distance Education Working Group was "to examine and recommend the infrastructure required for development and delivery of Distance Education Services".<sup>48</sup> In February 1990, the Report of the Distance Education Working Group, ***Distance Education: Towards Equality of Educational Opportunity***, recommended that a Distance Education Section be established within the Division of Program Development. The Report also contained a detailed description of the role and responsibilities

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<sup>47</sup> Distance Education/Learning Resources Section, Division of Program Development, Department of Education. ***The Distance Education Project: Using Technology to Improve Educational Opportunities in Rural Areas***, August 1990. St. John's: Government of Newfoundland and Labrador. p.3

<sup>48</sup> Department of Education. Report of the Distance Education Working Group. ***Distance Education: Towards Equality of Educational Opportunity***, February 1990. St. John's: Government of Newfoundland and Labrador. p.18.

of the proposed Distance Education Section including a description of the human resources required for the administration and coordination of the Distance Learning Program. However, the proposed Distance Education Section was **not** established due mainly to financial restraint imposed by the Government of Newfoundland and Labrador in the early 1990s. Therefore, the administration and coordination of the Distance Learning Program remained the responsibility of the Manager of Curriculum and Learning Resources until August 31, 1997.

The administration and coordination of the Distance Learning Program was a very **centralized** model; however, there was considerable collaboration with the principals of small rural schools and school district office personnel. The Program Development Division of the Department of Education was responsible for the following activities:

1. Design and development of student resources
  - Student handbooks
  - Student laboratory manuals for Physics and Chemistry
  - Student assessment instruments
  - Telewriter pages
  - Videos for Physics and Chemistry labs/demonstrations
2. Acquisition and distribution of student resources
  - Student textbooks
  - Student handbooks/laboratory manuals
  - Student assessment instruments
  - Computer software
  - Videodiscs – Chemistry
  - Audio/Video tapes
  - Computer interface (MPLI Systems) – Physics and Chemistry
3. Facilitation of delivery of senior high courses
  - Secondment of instructors
  - Scheduling (6-day cycle)
  - Establishing a school calendar (holidays)
  - Paying all telecommunications costs for small rural schools
    - Telemedicine Centre, Memorial University
    - NewTel Communications Inc.
4. Establishment of new Distance Learning Sites
  - Installation of telephone lines in consultation with the Telemedicine Centre
  - Purchasing of equipment for instructor/student sites
    - Telewriters and audio conference kits
    - Facsimile machines
  - Conducting professional development sessions
    - New instructors
    - New site administrators/co-ordinators

In essence, the Program Development Division of the Department of Education designed and developed the additional student learning resources, facilitated the delivery of the courses through the TETRA Network, developed the schedules

and administered the budget for distance education. The entire management of Distance Learning Program was within the Program Development Division. The Manager of Curriculum and Learning Resources was assisted by the Coordinator of Distance Learning Program who supervised the distance education instructors and communicated with the principals of small rural schools and the management of the Telemedicine Centre. In fact, the Distance Learning Program was perceived as a “Department of Education Project” by school district offices from an ownership perspective.

In the early 1990s, there were a number of issues and concerns regarding the development and delivery of senior high school courses to students in small rural schools via distance learning technologies such as the centralized scheduling of courses, the allocation of additional teaching units for the Distance Learning Program, and the costs associated with the delivery of courses using the TETRA Network. During the 1990-91 school year, Doug Young and Leon Cooper researched and prepared a Background Report, ***Distance Education: The Newfoundland and Labrador Project***, for the Royal Commission of Inquiry into the Delivery of Programs and Services in Primary, Elementary and Secondary Education. This Background Report which included a considerable amount of information related to distance learning initiatives in other Canadian provinces was submitted to the Royal Commission in February 1991.<sup>49</sup> Subsequently, the Royal Commission of Inquiry into the Delivery of Programs and Services in Primary, Elementary, Secondary Education examined the role of “Distance Education and Technology” for the delivery of courses and services. In March 1992, the Final Report of the Royal Commission, ***Our Children, Our Future***, contained a number of recommendations related to distance education, such as Recommendations 130, 131 and 132:

*That a Provincial Advisory Committee of Distance Education and Technology be established. The purpose of the committee should be to advise the Department of Education on appropriate policies, priorities and strategies to guide decisions related to distance education and the introduction of new technologies. Membership on the committee should include educators, business leaders and others who are knowledgeable in the general fields of telecommunications, computer technology, and distance learning.*

*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 into the school system.*

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<sup>49</sup> Department of Education. Young, D. & Cooper, L. A Background Report for the Royal Commission on Education, ***Distance Education: The Newfoundland and Labrador Project***, February 1991. St. John’s: Government of Newfoundland and Labrador.

*That the School of Distance Education and Technology seek to deliver full credit senior high school courses that meet provincial learning objectives.*<sup>50</sup>

In the meantime, it is noteworthy that the Department of Education did **not** implement the recommendations related to “Distance Education and Technology” despite the fact that the Chairperson of the Royal Commission, Dr. Leonard Williams, was appointed as the Deputy Minister of Education.

Furthermore, the Royal Commission of Inquiry into the Delivery of Programs and Services in Primary, Elementary, Secondary Education recommended that the Department of Education in consultation with school districts and post-secondary institutions evaluate all aspects of the Senior High Schools Program. As a result of these recommendations, the Department of Education conducted an extensive evaluation of the Senior High School Program. During the 1995-96 school year, the Department of Education released ***Directions for Change: A Consultation Paper on the Senior High School Program*** and invited submissions that were reviewed by an Advisory Committee.<sup>51</sup> Subsequently, the Department of Education released the Senior High School Report, ***The Senior High School Program: New Directions for the 21<sup>st</sup> Century***, which included a significant number of major changes to the Senior High School Program.<sup>52</sup> The Senior High School Report stated that the Department of Education in collaboration with school districts would:

- *Explore the range and feasibility of alternate delivery modes for specialized programming;*
- *Conduct a study of distance education technologies in light of recent technological advances;*
- *Continue to encourage school districts to explore regional distance education; and*
- *Explore the potential for distance delivery of courses for students with disabilities who need access to courses that would not normally be offered because of low enrolments.*<sup>53</sup>

In the mid-1990s, it was necessary to examine the roles and responsibilities in the area of distance learning in small rural schools in Newfoundland and

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<sup>50</sup> Royal Commission of Inquiry into the Delivery of Programs and Services in Primary, Elementary, Secondary Education. (1992). ***Our Children, Our Future***. St. John’s: Government of Newfoundland and Labrador. p. 321

<sup>51</sup> Department of Education. ***Directions for Change: A Consultation Paper on the Senior High School Program, 1995-96 School Year***. St. John’s: Government of Newfoundland and Labrador.

<sup>52</sup> Department of Education. ***The Senior high School Program: New Directions for the 21<sup>st</sup> Century, 1996***. St. John’s: Government of Newfoundland and Labrador.

<sup>53</sup> Ibid. P. 12

Labrador as a result of educational reform and school district consolidation. The need for the Distance Learning Program was increasing with the continuing decline in student enrolment and the reduction in the number of teachers allocated to school districts as a result of a decline in student population mainly in rural communities. The delivery of senior high school courses to students in small schools in rural communities was critical in order to maintain a minimum program to meet the Graduation Requirements. In addition, students in small rural schools had to be given an equal opportunity to access a post-secondary education and meet their entrance requirements. As indicated earlier, the Department of Education requested the Telemedicine Centre to regionalize the TETRA Network in order to meet the demands for distance education and facilitate scheduling in two different time zones (Newfoundland Time and Atlantic Time).

During the 1996-97 school year, Wilbert Boone, Manager of Curriculum/Distance Education, prepared an internal report, ***A Partnership Model for Distance Education in Newfoundland and Labrador***, for consideration by the Executive of the Department of Education. As a result of educational reform and school district consolidation, the report recommended a partnership model for the administration and coordination of distance learning in Newfoundland and Labrador. This administrative partnership model recommended that instructional design and development of student learning resources remain centralized with a de-centralized delivery of instruction using the school district **analog** circuits. In essence, school district offices would have a greater involvement in the day-to-day delivery of senior high school courses to students in small rural schools within their jurisdiction. The needs of students in small rural schools would be better assessed by the School District Office in collaboration with the school administration. In this administrative partnership model, the roles and responsibilities of the Program Development Division of the Department of Education, School District Offices, and the Telemedicine Centre were as follows:

➤ **Program Development Division, Department of Education**

- Design and develop student learning resources for senior high school courses for delivery via distance education technologies;
- Co-ordinate the preparation and distribution of student assessment instruments;
- Acquire and distribute student learning resources in addition to the authorized learning resources;
- Provide professional development for new distance instructors and new site administrators/co-ordinators; and,
- Pay all telecommunications costs for students in small rural schools as defined by the Department of Education.

➤ **School Districts**

- Assign distance education instructors as required;
- Design a school district schedule (e.g., 6-day cycle, 14-day cycle, etc.) in collaboration with school administrators;
- Maintain computer hardware and other equipment (e.g., facsimile machine, Video Cassette Recorder, etc.) in existing sites; and,
- Pay all telecommunications costs for students in schools which are NOT small schools as defined by the Department of Education.

➤ **Telemedicine Centre, Memorial University of Newfoundland**

- Establish school district **analog** circuits in consultation with the Department of Education, school districts, and NewTel Communications Inc.,
- Provide professional development for all new distance education instructors and site administrators/co-ordinators in collaboration with the Department of Education and school districts;
- Provide operators for the school district **analog** circuits on a daily basis; and,
- Maintain telewriters and audio conference kits in all existing sites.<sup>54</sup>

Furthermore, these roles and responsibilities for each partner had been established and confirmed in a **Memorandum of Understanding** for each of the school districts in the spring of 1997. Subsequently, the Department of Education requested the Telemedicine Centre to regionalize the TETRA Network to parallel the new school district boundaries. As a result, **nine** school district **analog** circuits were re-configured within the TETRA Network for the beginning of the 1997-98 school year. It should be noted that there were no distance education sites in the Avalon East School District. These school district networks enabled the Department of Education in collaboration with the School District Offices to implement a partnership model for the administration and coordination of distance learning in Newfoundland and Labrador. The school district networks were as follows:

- School District Network One – Labrador
- School District Network Two – Northern Peninsula/Labrador South
- School District Network Three – Corner Brook/Deer Lake/St. Barbe
- School District Network Four – Stephenville/Port aux Basques
- School District Network Five – Baie Verte/Central/Connaigre

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<sup>54</sup> Division of Program Development, Department of Education. ***A Partnership Model for Distance Education in Newfoundland and Labrador***, March 1997. St. John's: Government of Newfoundland and Labrador. p. 8-9.

- School District Network Six – Lewisporte/Gander
- School District Network Seven – Burin Peninsula
- School District Network Eight – Clarenville/Bonavista
- School District Network Nine – Avalon West

Historically, September 1997 was a significant milestone related to the governance of the primary, elementary and secondary school system since it marked the end of the denominational school system in Newfoundland and Labrador. As well, September 1997 marked a decade since the **Small Rural Schools Distance Learning Project** in the area of Advanced Mathematics had been established in September 1987. In the 1997-98 school year, there were **12** senior high school courses offered to students in small rural schools via distance learning technologies; namely, Advanced Mathematics 1201, 2201, & 3201; Calculus Readiness 3105; Physics 2204 and 3204; Chemistry 2202 and 3202; and French 2100/2101, 3200 and 3201. In September 1997, there were **1,186** course registrations in **82** schools of which **69** were small rural schools. As the number of course offerings and course registrations grew so did the need for additional distance education instructors. As a result, there were **29** full-time or part-time distance education instructors, teaching from **24** locations (mainly larger schools) throughout the province. In fact, the establishment of school district networks in the 1997-98 school year marked a significant milestone in the evolution of **e-learning** in Newfoundland and Labrador.

Meanwhile, the internal report, ***A Partnership Model for Distance Education in Newfoundland and Labrador***, prepared by Wilbert Boone identified the need for the Program Development Division of the Department of Education to conduct some research related to the use of **digital** technologies in the delivery of senior high school courses to students in small rural and remote schools throughout Newfoundland and Labrador. The internal report stated that the technologies being used in some of the small rural schools were **ten** years old (e.g., Telewriters operating with 286 computers). The internal report also stated that the transition from an **analog** distance learning environment to a **digital** distance learning would require a minimum of 3-5 years of research and development in collaboration with the Telemedicine Centre (TETRA Network), the Open Learning and Information Network (OLIN), NewTel Communications and other private communications carriers (e.g., Cable Atlantic and Regional Cable). In addition, the internal report identified a number of important factors that required research such as the number of distance learning sites, the number of students at each site, the type of distance learning technologies that should be used, the nature of the interaction – synchronous versus asynchronous, the acceptable quality of the

audio and video (i.e., bandwidth), and the acceptable level of cost. As a result, the internal report contained the following recommendation:

*That the Program Development Division collaborate with school districts and other agencies regarding the transition to a **digital** learning environment in distance education.*<sup>55</sup>

## 7. Educational Networking in Primary, Elementary and Secondary Schools in Newfoundland and Labrador - An Historical Overview

The Final Report of the Task Force on Mathematics and Science Education, ***Towards an Achieving Society***, included a number of recommendations related to computer education. Recommendations 9.10 and 12.18 stated:

*That the development of a computer studies program be assigned the highest priority among curriculum development activities to be pursued.*

*That the standard computing configuration for school use be one which functions under the DOS operating system and is based on a local area network incorporating a central device with a fixed disk drive, along with devices having floppy disk drives for individual student use.*<sup>56</sup>

As a result of these recommendations made by the Task Force on Mathematics and Science Education, the Department of Education announced the “Lighthouse Schools Project” in the spring of 1990. In consultation with school districts, the Department of Education established **thirty-one** “Lighthouse Schools” in the 1990-91 school year. All of these “Lighthouse Schools” offered the Senior High School Program and the majority of these schools were larger **urban** schools throughout Newfoundland and Labrador. In essence, these “Lighthouse Schools” were supplied with appropriate computer hardware and software which enabled them to establish a “Computer Laboratory” that included a Local Area Network. As a result of this strategic initiative, school districts established Local Area Networks in all schools which were offering the Senior High School Program in the early 1990s. In fact, this was the beginning of educational networking in the primary, elementary and secondary school system using **digital** technologies and another milestone in the evolution of **e-learning** in the school system.

Subsequently, the Department of Education seconded Frank Shapleigh a Physics Teacher at St. Paul’s High School in Gander for a period of **three** years

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<sup>55</sup> Ibid. p.17

<sup>56</sup> Department of Education. ***Towards an Achieving Society***. Final Report of the Task Force on Mathematics and Science Education. St. John’s: Government of Newfoundland and Labrador, May 1989. P. 201 and 276.

(September 1990 to June 1993) to facilitate the implementation of the **Lighthouse Schools Project** in collaboration with School District Offices. Specifically, Mr. Shapleigh traveled to every “Lighthouse School” and assisted teachers and other school district personnel with the installation of computer hardware and software including a Local Area Network during the 1990-91 school year. He provided outstanding leadership and expertise to teachers who were assigned to maintain the Computer Laboratory and to ensure that the Local Area Network was functioning effectively on a daily basis for other teachers and their students.

In the fall of 1991, the Atlantic Canada Opportunities Agency commissioned Seaconsult Limited of St. John’s to undertake a computer network feasibility study. In April 1992, ***A Conceptual Study of a Computer Network to Enhance the Teaching of Science and Mathematics in Newfoundland and Labrador Schools*** was submitted to the Atlantic Canada Opportunities Agency. With an extensive study of educational networks (K-12) elsewhere, Seaconsult Limited confirmed the feasibility of a province-wide **Science Teachers’ Computer Network (STCN)**, and recommended that Memorial University of Newfoundland be asked to submit a funding proposal to design and develop the network. In 1992, Dr. Jaap Tuinman, Vice-President (Academic) of Memorial University, accepted the invitation from the Atlantic Canada Opportunities Agency and seconded Harvey Weir, a Physics Professor in the Physics Department, Faculty of Science, to work with him on the proposal. In February 1993, the ***STEM~Net Proposal: A Computer Network for K-12 and College Educators in Newfoundland and Labrador*** was submitted to the Atlantic Canada Opportunities Agency and the Department of Education. In essence, the proposal requested financial assistance under the Canada/Newfoundland COOPERATION Agreement on Human Resource Development for a period of five years.

In September 1993, **STEM~Net: Educational Networking in Newfoundland and Labrador** was officially launched as a province-wide computer network for teachers in primary, elementary and secondary school system (K-12) and college instructors employed by the College of the North Atlantic. Harvey Weir was seconded from the Physics Department, Faculty of Science, and appointed as the Director of STEM~Net. Meanwhile, Frank Shapleigh a Physics Teacher at St. Paul’s High School in Gander was seconded by the Department of Education to assist with the implementation of STEM~Net, in particular, to provide communication and connectivity services of schools. In fact, Mr. Shapleigh is one of the most knowledgeable and respected educators both provincially and nationally with respect to Information and Communications Technologies and their use in the primary, elementary and secondary school system (K-12).

Meanwhile, STEM~Net was a founding member of SchoolNet which was officially launched on October 15, 1993 in Newfoundland and Labrador. SchoolNet, established by Industry Canada in partnership with the provinces and territories, was intended to connect all schools in Canada to the Information Highway by March 31, 1999. Nationally, STEM~Net provided leadership in the area of educational networking in partnership with SchoolNet. In fact, Newfoundland and Labrador was the first Canadian province to have all its schools connected to the Information Highway by March 31, 1998 which was another milestone in the evolution of **e-learning** in the primary, elementary and secondary school system.

In response from many teachers and school district office professional staff, the original mandate of designing and developing an educational network for **Science, Technology Education and Mathematics** educators was extended to include all primary, elementary and secondary educators. The original Mission Statement stated:

*The Mission of STEM~Net is to be a high-quality computer network for education in Newfoundland and Labrador, and to support the teaching, curriculum and professional activities of teachers.*<sup>57</sup>

As a high-quality computer network for education in Newfoundland and Labrador, STEM~Net required a **digital** telecommunications infrastructure in rural and remote communities in order to provide equitable connectivity for teachers and students in both urban and rural schools. In order to improve connectivity in the small rural and remote schools, STEM~Net in partnership with the Information Highway Applications Branch [SchoolNet] of Industry Canada, School District Offices, NewTel Communications Inc. and with a financial contribution from the Canada/Newfoundland COOPERATION Agreement on Human Resource Development implemented the *DirecPC* Satellite Project in the 1997-98 school year. As a result of this initiative, the majority of small rural schools were provided with a *DirecPC* satellite dish (N=170) that provided a high-speed down-link from the Internet. Meanwhile, all small rural schools offering the senior high school program with some courses offered via distance learning using the TETRA Network were provided with a *DirecPC* satellite dish.

As a result of funding provided to school districts by the Department of Education as well as through the Canada/Newfoundland COOPERATION Agreement on Human Resource Development, the majority of small rural schools were provided with computers and a Local Area Network. In addition, a large number of these

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<sup>57</sup> *The STEM~Net Proposal: A Proposal to Create a Computer Network for K-12 and College Educators in Newfoundland and Labrador.* Dr. Jaap Tuinman, Vice-President (Academic), Memorial University of Newfoundland. February, 1993.

schools had a “Computer Laboratory” that was connected to the Information Highway using the *DirecPC* satellite dish. As a consequence, teachers and students in small rural schools in this province had significant access to a number of Information and Communications Technologies (ICT) as a result of the initiatives by STEM~Net and its partners. Despite these initiatives, the larger **urban** schools had more access to programs, projects and services facilitated and coordinated by STEM~Net than the smaller **rural** schools due to the lack of digital telecommunications infrastructure in the majority of rural and remote communities around the coastline of Newfoundland and Labrador.

Meanwhile, STEM~Net developed and implemented a number of programs and projects in partnership with the Department of Education, the School Districts, the Newfoundland and Labrador Teachers’ Association (NLTA) Special Interest Councils, Industry Canada/SchoolNet and Cable Atlantic. These programs and projects which focused on technology integration across the curriculum enhanced the teaching and learning in primary, elementary and secondary schools (K-12). In fact, the STELLAR Schools Project and SchoolNet projects such as GrassRoots provided excellent opportunities for teachers and students at all grade levels and in all subject areas to integrate technology into the teaching and learning environment. These programs and services facilitated and coordinated by STEM~Net also provided opportunities for teachers and their students to be engaged in a significant number of **e-learning** projects. In essence, STEM~Net and its’ partners acted as a catalyst, leader and change agent in bring schools in Newfoundland and Labrador into the Information Age.

During the 1993-94 school year, the Program Development Division and the Information Technology Division of the Department of Education facilitated the research and development of a strategic plan for the integration of information technology into the teaching and learning environment, the curriculum development process, and the learning resources management process of the primary, elementary and secondary school system (K-12) in Newfoundland and Labrador. The Technology In Learning Environments (TILE) Project was a very comprehensive initiative that was guided by an Advisory Committee and a Quality Assurance Committee. The Strategic Technology Integration Plan, ***TECHNOLOGY IN LEARNING ENVIRONMENTS: Enabling Tomorrow’s Learners, Today***, was released to school districts and other agencies by the Department of Education in the 1994-95 school year. The Strategic Technology Integration Plan articulated a vision for technology in learning environments and included a large number of strategies and projects in the following categories: Policy Changes; Educational Support; Professional Development; Enabling Technologies; Technology Integration; Curriculum Management; and Curriculum

Technology Infrastructure. A number of the strategies and projects focused on educational networking (e.g., Our Community Educational Access Network) and distance learning technologies (e.g., Distance Education Opportunity Study). Furthermore, the Strategic Technology Integration Plan also outlined a **five-year** timeframe (1995 -2000) to assist the Department of Education and other educational agencies with the implementation of the various projects.<sup>58</sup>

## 8. The Centre for TeleLearning and Rural Education, Faculty of Education, Memorial University of Newfoundland

In March 1992, the Final Report of the Royal Commission of Inquiry into the Delivery of Programs and Services in Primary, Elementary, Secondary Education, ***Our Children, Our Future***, examined teacher education in the Faculty of Education. In fact, the Royal Commission stated that the Faculty of Education uses an urban model for preparing teachers that does not take into account rural conditions, small schools, limited resources or multi-grade settings. The Final Report of the Royal Commission contained a number of recommendations for consideration by the Faculty of Education such as Recommendation 80 which stated:

*That the Faculty of education establish a Centre for Small Schools which would address problems of particular concern to small schools, and approaches to teaching in multi-grade classrooms.*<sup>59</sup>

The creation of the Centre for TeleLearning and Rural Education was preceded by a decision in 1995 to create a Chair of TeleLearning within the Faculty of Education, Memorial University of Newfoundland, as a result of opportunities to access external funding including the TeleLearning Network of Centres of Excellence (TL.NCE) and Industry Canada. After an extensive search (national and international), Dr. Ken Stevens was appointed to the position of Professor in the Faculty of Education and Chair in TeleLearning on January 1, 1997.

In order to facilitate the research of the Chair of TeleLearning and to provide simultaneously a tangible link to the Faculty of Education, Dr. Terry Piper, Dean of Education, recommended to the Vice-President (Academic) that a **Centre for TeleLearning and Rural Education** be established in the Faculty of Education,

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<sup>58</sup> Department of Education. ***TECHNOLOGY IN LEARNING ENVIRONMENTS: Enabling Tomorrow's Learners, Today***. St. John's: Government of Newfoundland and Labrador. 1994

<sup>59</sup> Royal Commission of Inquiry into the Delivery of Programs and Services in Primary, Elementary, Secondary Education. (1992). ***Our Children, Our Future***. St. John's: Government of Newfoundland and Labrador. p. 289

Memorial University of Newfoundland. The establishment of this Centre for TeleLearning and Rural Education was a significant milestone in the history of the Faculty of Education and was endorsed by the educational stakeholders as a commitment to improving teaching and learning in small rural schools in Newfoundland and Labrador. The Centre for TeleLearning and Rural Education was assigned a dual mandate in the areas of “TeleLearning” and “Rural Education” to conduct research and to promote telelearning in teacher education, in particular, small rural schools in Newfoundland and Labrador.

Meanwhile, Wilbert Boone, Manager of Curriculum and Learning Resources/ Distance Learning, in the Program Development Division of the Department of Education was seconded to serve as the Managing Director of the Centre for TeleLearning and Rural Education effective September 1, 1997. He remained in that position until December 31, 2000, when he decided to take early retirement. As the Managing Director, Mr. Boone in collaboration with the Chair of TeleLearning, the Associate Dean for Graduate Studies and Research and other members of the Faculty of Education was able to access a significant amount of external funding for a variety of research and development initiatives in the areas of “TeleLearning” and “Rural Education”. As a result, the Centre for TeleLearning and Rural Education acted as a catalyst in the Faculty of Education for research and development in the areas of “TeleLearning” and “Rural Education” with a special focus on small schools in rural and remote communities in Newfoundland and Labrador.

In the late 1990s, the Centre for TeleLearning and Rural Education conducted, facilitated and/or coordinated a number of innovative research and development projects which enhanced the knowledge and understanding of educators who were engaged in the design and development of on-line courses for teachers as well as senior high school students. The following is a brief overview of these projects:

- **TeleLearning Network of Centres of Excellence (TL.NCE) – Theme 4: K-12 Knowledge-building Communities**

In 1995, Memorial University of Newfoundland became a founding partner in the national **TeleLearning Network of Centres of Excellence (TL.NCE)**. As a result, Dr. Jaap Tuinman, Vice-President (Academic), and Dr. Terry Piper, Dean of Education, were successful in having the Faculty of Education included as a lead research institution in Theme 4: K-12 Knowledge-building Communities. Specifically, Theme 4.3: Interactive Computer-based Laboratories in Science, Technology and Mathematics was assigned to the Faculty of Education at Memorial University. As a

result, a Mathematics Laboratory was established in Clarenville Integrated High School which was under the jurisdiction of the Vista School District. This became the anchor research project for the Chair of TeleLearning and Rural Education when he assumed his position on January 1, 1997. In fact, Dr. Stevens assumed the role of principal researcher for the TL.NCE research project in collaboration with Dr. Piper and later with Dr. Bruce Sheppard, Associate Dean of Graduate Programmes and Research, Faculty of Education.

- **The Vista School District Digital Intranet: The Delivery of Advanced Placement Courses to Young Adult Learners in Rural Communities**

During the 1997-98 academic year, the Centre for TeleLearning and Rural Education in partnership with the Vista School District and STEM~Net was able to access significant funding from the Information Highway Applications Branch of Industry Canada to design and develop the content of Advanced Placement (AP) courses in Mathematics, Physics, Chemistry and Biology for delivery on-line to senior high school students enrolled in small rural schools under the jurisdiction of the Vista School District. During the summer of 1998, four students enrolled at Memorial University were hired to assist in the design and development of these courses. In fact, these were the first courses to be designed and developed for delivery on-line to senior high school students in Newfoundland and Labrador.

In September 1998, the Centre for TeleLearning and Rural Education in partnership with STEM~Net and the Vista School District established the **Vista School District Digital Intranet**. During the 1998-99 school year, a number of senior high school students located in small rural schools under the jurisdiction of the Vista School District were enrolled in the on-line AP courses in Mathematics 4225, Biology 4221, Chemistry 4222 and Physics 4224. In fact, this research and development initiative in “TeleLearning” was an extension of the TL.NCE Theme 4.3: Interactive Computer-based Laboratories in Science, Technology and Mathematics. However, one of the major challenges of this research project was the lack of bandwidth available for audio and video conferencing in small rural schools.

- **The Design and Development of a *Diploma in TeleLearning and Rural School Teaching***

During the 1996-97 academic year, the Harvey Weir, the Director of STEM~Net, in collaboration with Dr. Terry Piper and other members of the

Faculty of Education facilitated the development of a proposal requesting funding from the Post-secondary Distance Education and New Media Learning Program of the Canada/Newfoundland Economic Renewal Agreement (ERA) for researching and developing on-line courses for teachers in small rural schools. As a result, funding was provided for the design and development of **two** courses that would eventually would become part of a new *Diploma in TeleLearning and Rural School Teaching*.

During the 1997-98 academic year, the Managing Director of the Centre for TeleLearning and Rural Education in collaboration with the Executive Director of the School of Continuing Education and members of the Faculty of Education submitted a comprehensive proposal requesting a significant amount of funding from the Post-secondary Distance Education and New Media Learning Program of the Canada/Newfoundland Economic Renewal Agreement (ERA) to research and develop additional courses for the proposed *Diploma in TeleLearning and Rural School Teaching*. Subsequently, funding was approved and the Centre for TeleLearning and Rural Education facilitated and/or coordinated the research and development of additional courses with the assistance of Rachel Handrigan, the former Assistant Director of the Northern Peninsula/Labrador South School District, was employed as a Research Assistant by the School of Continuing Education.

Meanwhile, the *Diploma in TeleLearning and Rural School Teaching* offered a unique opportunity for teachers to make effective use of information and communications technologies (ICT) to promote excellence in teaching and learning in small rural schools. All of the courses were web-based and supported through a CD-ROM. Teachers had to successfully complete **six** CORE courses, **four** ELECTIVE courses and a Field-based Experience in order to be awarded the *Diploma in TeleLearning and Rural School Teaching*. Unfortunately, this initiative was not supported by a significant number of members of the Faculty of Education. As a result, the *Diploma in TeleLearning and Rural School Teaching* is no longer offered by Distance Education and Learning Technologies, Memorial University of Newfoundland.

In addition, the Centre for TeleLearning and Rural Education conducted, facilitated and/or coordinated a number of research and evaluation projects such as the following:

- **The *Summative Evaluation of STEM~Net: Educational Networking in Newfoundland and Labrador***

In November 1997, the Centre for TeleLearning and Rural Education in the Faculty of Education, Memorial University of Newfoundland, was contracted to collect, analyze, synthesize and present some **qualitative** data related to the effectiveness of STEM~Net in Newfoundland and Labrador. During the winter of 1998, Dr. Ken Stevens, Chair of TeleLearning and Rural Education, and Wilbert Boone, Managing Director of the Centre for TeleLearning and Rural Education, conducted formal interviews with **107** people individually or as part of a group including representatives from all of the main public and private sector partners. In March 1998, the Centre for TeleLearning and Rural Education completed a comprehensive report, ***The Summative Evaluation of STEM~Net: Educational Networking in Newfoundland and Labrador***, which contained a qualitative synthesis of formal interviews with individuals and groups.<sup>60</sup>

Meanwhile, Stevens and Boone made a number of recommendations as a result of conducting a summative evaluation of STEM~Net. A decade later, it is most interesting to reflect on the following recommendation:

*That **STEM~Net** explore the feasibility of developing and delivering senior high school courses to students in small rural schools throughout Newfoundland and Labrador in collaboration with the Program Development Division of the Department of Education, School District Offices and the Centre for TeleLearning and Rural education in the Faculty of Education, Memorial University of Newfoundland.*<sup>61</sup>

- **A Case Study of SchoolNet in Newfoundland and Labrador: Integrating Information and Communications Technology (ICT) into the Teaching and Learning Environment of Primary, Elementary and Secondary Schools through SchoolNet Programs, Projects and Services**

In October 1998, the Centre for TeleLearning and Rural Education was contracted by the National Office for SchoolNet to conduct an External Evaluation of SchoolNet in Newfoundland and Labrador. The focus of the External Evaluation was to examine the integration of Information and

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<sup>60</sup> Centre for TeleLearning and Rural Education, Faculty of Education, Memorial University of Newfoundland. Stevens, K. & Boone, W. ***The Summative Evaluation of STEM~Net: Educational Networking in Newfoundland and Labrador***. March 1998.

<sup>61</sup> Ibid.

Communications Technologies (ICT) into the teaching and learning environment of primary, elementary and secondary schools through SchoolNet programs, projects and services; however, the primary focus was the SchoolNet GrassRoots Program and the SchoolNet *DirecPC* Satellite Project. Further, it was agreed that this External Evaluation would complement ***The Summative Evaluation of STEM~Net: Educational Networking in Newfoundland and Labrador*** conducted by the Centre for TeleLearning and Rural Education in the 1997-98 school year.

The External Evaluation of SchoolNet was a qualitative study involving a “stratified random sample” of **15** schools throughout Newfoundland and Labrador. A total of **90** semi-structured interviews were conducted with school administrators, teachers, students and four members of the STEM~Net staff. Doug Furey, Research Assistant, conducted all of the interviews using protocols developed for the purpose of the external evaluation. All interviews were taped and transcribed for analysis by the external evaluators: Dr. Ken Stevens, Chair of TeleLearning and Rural Education, and Dr. Bruce Sheppard, Associate Dean of Graduate Programmes and Research, Faculty of Education.

In March 1999, the Centre for TeleLearning and Rural Education submitted a Final Report, ***A Case Study of SchoolNet in Newfoundland and Labrador: Integrating Information and Communications Technology (ICT) into the Teaching and Learning Environment of Primary, Elementary and Secondary Schools through SchoolNet Programs, Projects and Services***, to the National Office of SchoolNet. The Final Report contained **eleven** recommendations to the SchoolNet Administration.<sup>62</sup> After the Final Report was submitted to the National Office of SchoolNet, Wilbert Boone travelled to Ottawa and made a formal presentation (PowerPoint Presentation) to the SchoolNet Administration and Program Staff.

- **Effective Schooling in a TeleLearning Environment: Centres of Innovation in Information and Communications Technologies**

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<sup>62</sup> Centre for TeleLearning and Rural Education, Faculty of Education, Memorial University of Newfoundland. Sheppard, B. & Stevens, K. ***A Case Study of SchoolNet in Newfoundland and Labrador: Integrating Information and Communications Technology (ICT) into the Teaching and Learning Environment of Primary, Elementary and Secondary Schools through SchoolNet Programs, Projects and Services***. March 1999.

During the 1999-2000 academic year, the Centre for TeleLearning and Rural Education facilitated a major research project related to effective teaching and learning in a **TeleLearning Environment**. This was the first comprehensive study that examined the impact of telecommunications technologies on the delivery at the senior high school courses to students in small rural and remote schools throughout Newfoundland and Labrador since the implementation of the **Small Schools Distance learning Project** in September 1988.

The main purpose of the study was to examine the effective utilization of Information and Communications Technologies (ICT) in teaching and learning at the senior high school level in “small, necessarily existent” schools throughout Newfoundland and Labrador. The study involved **35** “small, necessarily existent” schools throughout Newfoundland and Labrador. The study focused on senior high school students in “small, necessarily existent” schools who were studying courses in Advanced Mathematics, Physics, Chemistry and French via distance learning technologies as well as graduates who had completed some of these courses during the previous five years (June 1995 to June 1999). This research project involved the collection of both quantitative and qualitative data.

The quantitative data was collected through a telephone survey of a stratified random sampling of students who graduated from schools located in rural and remote communities throughout Newfoundland and Labrador. The sample required by the quantitative phase of the study was comprised of **150** graduates from a database of approximately 480 graduates who had studied one or more of the courses in Advanced Mathematics, Physics, Chemistry and French via distance learning technologies in the **35** “small, necessarily existent” schools. A comparative sample of **150** graduates was selected from a database of approximately 470 graduates who had studied one or more of the same courses in a face-to-face teaching and learning environment in **23** rural schools across the province. The telephone surveys were 15-20 minutes in duration and were conducted during the spring of 2000 by two Research Assistants: Sharada Oakley and Alison Manning.

The qualitative data was collected onsite during the winter and spring of 2000 by Lloyd Gill, a former Distance Education Instructor (Physics) who was hired as the Research Assistant. Interview protocols were used with key individuals including a member of the administration, the technology

teacher, the distance education advisor, classroom teachers, distance education students and parents of distance education students. As well, all of the distance education instructors were interviewed. In fact, **173** interviews were conducted involving **397** individuals. All interviews were taped and transcribed for analysis by the Principal Investigators: Dr. Ken Stevens, Chair of TeleLearning and Rural Education; Dr. Jean Brown, Professor, Faculty of Education; and Dr. Bruce Sheppard, Director of Education/Chief Executive Officer, Avalon West School District.

During the fall of 2000, the Centre for TeleLearning and Rural Education published **two** separate reports as a result of the financial contributions from the Research Infrastructure Funding Program (Information Technology and Informatics) of the Canada/ Newfoundland Cooperation Agreement on Economic Renewal as well as the SchoolNet Programs, Information Highway Applications Branch, Industry Canada. In October 2000, the Centre for TeleLearning and Rural Education published a Final Report, ***The Impact of Information Highway Technology on Post-Secondary Education and Career Choices of Senior High School Graduates in Rural and Remote Communities throughout Newfoundland and Labrador***, that was forwarded to SchoolNet. It should be noted that the study included **five** research questions; however, the focus of this report was only on the analysis of the data related to the first research question:

*How has experience with Information and Communications Technologies (ICT) influenced students' post-secondary education and career choices?*<sup>63</sup>

In December 2000, the Centre for TeleLearning and Rural Education in collaboration with the Principal Investigators published a Final Report, ***Effective Schooling in a TeleLearning Environment: Centres of Innovation in Information and Communications Technologies***. This Final Report provided a very detailed analysis based on an extensive collection of quantitative and qualitative data that involved principals, teachers, students, parents and graduates of "small, necessarily existent" schools. All distance education instructors were also interviewed. Meanwhile, the Principal Investigators made **twenty-nine** recommendations that were intended for consideration by the educational

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<sup>63</sup> Centre for TeleLearning and Rural Education, Faculty of Education, Memorial University of Newfoundland. Brown, J., Sheppard, B., & Stevens, K. ***The Impact of Information Highway Technology on Post-Secondary Education and Career Choices of Senior High School Graduates in Rural and Remote Communities throughout Newfoundland and Labrador***. October 2000.

leaders and decision-makers in the primary, elementary and secondary school system of the province. In fact, a number of the recommendations provided direction for the new Centre for Distance Learning and Innovation that was being established by the Department of Education.<sup>64</sup>

- **A Comparative Study of Education, Youth Employment and the Impact of Telecommunications Technologies on the Economies of Rural Communities across the Islands of the North Atlantic Rim**

During the 1998-99 academic year, the Centre for TeleLearning and Rural Education facilitated a major research project entitled ***A Comparative Study of Education, Youth Employment and the Impact of Telecommunications Technologies on the Economies of Rural Communities across the Islands of the North Atlantic Rim***. This research project focused on small schools in rural and remote communities in the Northern Peninsula/Labrador South Region and similar types of schools in rural and remote communities in Iceland. This research project was funded by the Atlantic Canada Opportunities Agency and the Department of Development and Rural Renewal under the Canada/Newfoundland Agreement on Economic Renewal; the Information Highway Applications Branch, Industry Canada, under the Community Access Program; and, the Professional Development Division, Newfoundland and Labrador Teachers' Association under the Educational Research Program.

The Principal Investigator was Dr. Jean Brown, Professor in the Faculty of Education who was granted a sabbatical leave which enabled her to conduct field research in small rural and remote schools in both Newfoundland and Labrador and Iceland during the 1998-99 academic year. Dr. Brown visited all **33** schools under the jurisdiction of the Northern Peninsula/Labrador South School District with the assistance of Rachel Handrigan, Assistant Director of Programs, and Avon Fancy, Program Implementation Specialist, Northern Peninsula School District. Dr. Brown also visited **7** schools in various regions of Iceland including the Westfjords and the Skagfjörður regions of Iceland with the assistance of a number of Icelandic educators; in particular, Kolbrún Siguróardóttir, Director of the Teachers' Centre, Dr. Sigurjón Mýrdal, Associate Professor, and Jón Jónasson, Director, Institute of Continuing Education,

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<sup>64</sup> Centre for TeleLearning and Rural Education, Faculty of Education, Memorial University of Newfoundland. Brown, J., Sheppard, B., & Stevens, K. ***Effective Schooling in a TeleLearning Environment: Centres of Innovation in Information and Communications Technologies***. December 2000. P. 227-229

Iceland University of Education, and Thora Bjork Jonsdóttir, Special Needs Advisor, Sauðárkrókur Regional Education Office, Skagfjörður.

This comparative research initiative included a number of components: an educational study tour of Iceland; a symposium on the sustainability of small rural schools across the North Atlantic Rim; the production of a special video, *Learning From Each Other*; the development of a course, Education 4903: Leadership Perspectives in Rural Schools, as one of the CORE courses for the *Diploma in TeleLearning and Rural School Teaching*; and, the publishing of a series of reports.

➤ **Educational Study Tour of Iceland**

During the 1998-99 academic year, Dr. Jean Brown and Wilbert Boone in collaboration with Dr. Sigurjón Mýrdal, Kolbrún Siguróardóttir, Jón Jónasson and Dagný Sveinbjörnsdóttir, Project Manager of the Westfjords Development Agency, organized an **Educational Study Tour of Iceland**. There were **19** individuals from Newfoundland and Labrador who participated in this valuable educational journey in late April and early May 1999. The majority of the participants were senior educational leaders in the province. Due to the unique research design, each participant assisted in answering the research questions.

➤ **Symposium on the Sustainability of Small Rural Schools across the North Atlantic Rim**

The Centre for TeleLearning and Rural Education hosted a 50<sup>th</sup> Anniversary Symposium on the Sustainability of Small Rural Schools across the North Atlantic Rim in partnership with the Northern Peninsula/Labrador South School District, the Newfoundland and Labrador Teachers' Association, and the Department of Education on August 11-14, 1999, in St. Anthony. This was one of the events to celebrate the 50<sup>th</sup> Anniversary of Memorial University which was established on August 19, 1949. The theme of the 50<sup>th</sup> Anniversary Symposium was "**Small Rural Schools in the Global Community**". The 50<sup>th</sup> Anniversary Symposium was organized around **four** main strands: educational leadership in small rural schools; teacher education/professional development for small rural school teachers; the role of information and communications technologies in small rural schools; and, community economic development and the role of the small rural

school. Dr. Jean Brown was the Plenary Speaker for the first strand: Educational Leadership in Small Rural Schools and presented some of the findings of the comparative study. In addition, the Centre for TeleLearning and Rural Education contracted Pittman Technology Group Inc. to produce a CD-ROM of the proceedings of the 50<sup>th</sup> Anniversary Symposium with the assistance of Rachel Handrigan.

➤ ***Learning From Each Other***

The Centre for TeleLearning and Rural Education facilitated a video production, ***Learning From Each Other***, in partnership with the Professional Development Division of the Newfoundland and Labrador Teachers' Association (NLTA) and the Centre for Academic and Media Services, School of Continuing Education, Memorial University. The Centre for TeleLearning and Rural Education received a financial contribution from Canada's SchoolNet to assist with the video production. Dr. Jean Brown assisted René Wicks, Administrative Officer with the Professional Development Division of the NLTA with the writing of the script for this special video production. This video profiled small rural schools in the Northern Peninsula/Labrador South School District and Iceland and was premiered at the 50<sup>th</sup> Anniversary Symposium.

➤ **Education 4903: Leadership Perspectives in Rural Schools**

During the fall of 1999, Dr. Jean Brown developed a course, Education 4903: Leadership Perspectives in Rural Schools, which was one of the **six** CORE courses developed for the new *Diploma in TeleLearning and Rural School Teaching*. Specifically, Dr. Brown incorporated many of her research findings related to "Educational Leadership in Rural Schools" in the context of small schools in rural and remote communities in Iceland and the Northern Peninsula/Labrador South Region of Newfoundland and Labrador.

➤ **Community Economic Development and Small Rural Schools across the North Atlantic Rim**

During the summer of 2000, Dr. Jean Brown and Wilbert Boone published a report that focused on the findings of the comparative study and the lessons learned in the context of "Community Economic Development". In essence, this report, ***Community***

***Economic Development and Small Rural Schools across the North Atlantic Rim***, addressed the research questions related to regional/community economic development and the role of primary, elementary and secondary schooling within the context of the field research conducted in rural and remote communities in Iceland, the Great Northern Peninsula and the Labrador South Region of Newfoundland and Labrador. The report also contained a number of recommendations.

➤ **North Atlantic Forum 2000**

On September 24-27, 2000, Memorial University of Newfoundland and the College of the North Atlantic in partnership with the Newfoundland and Labrador Federation of Labour and the Newfoundland and Labrador Federation of Municipalities co-hosted **North Atlantic Forum 2000** at the Marble Mountain Ski Resort, Corner Brook. This was the second in a series of international forums under the umbrella of the North Atlantic Islands Programme (NAIP). The theme of North Atlantic Forum 2000 was “Opportunity and Action in a Knowledge-driven Economy: New Lessons from the Edge”. North Atlantic Forum 2000 focused on the relationships between economic development and the three themes of *local governance, organized labour and education and training*.

As the Managing Director of the Centre for TeleLearning and Rural Education, Wilbert Boone was a member of the Steering Committee for North Atlantic Forum 2000. He was also the Chairperson of the Education and Training Planning Committee. Meanwhile, the Plenary Session for Education and Training focused on ***A Comparison of the Governance of Education Systems in Newfoundland and Labrador and Iceland***. The Presenters were: Dr. Jean Brown, Professor, Faculty of Education, Memorial University of Newfoundland, and Dr. Sigurjón Mýrdal, Associate Professor, Iceland University of Education, Reykjavik, Iceland.<sup>65</sup>

Furthermore, one of the Concurrent Sessions focused on ***A Comparison of Teacher Professional Development: Iceland and Newfoundland and Labrador***. The Presenters were: René

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<sup>65</sup> *North Atlantic Forum 2000: Opportunity and Action in a Knowledge-driven Economy – New Lessons from the Edge*, Program Booklet, September 24-27, 2000. p.29

Wicks, Administrative Officer with the Professional Development Division of the Newfoundland and Labrador Teachers' Association, and Jón Jónasson, Director, Institute of Continuing Education, Iceland University of Education, Reykjavik, Iceland. In fact, this presentation complemented the Plenary Session by Dr. Brown and Dr. Mýrdal.<sup>66</sup>

In April 2000, Wilbert Boone, Managing Director of the Centre for TeleLearning and Rural Education, in collaboration with Dr. Ken Stevens, Chair of TeleLearning and Rural Education, completed a Strategic Plan for the Centre for TeleLearning and Rural Education, ***Navigating the North Atlantic Rim: A Strategic Plan***. This document articulated the Mission Statement of the Centre for TeleLearning and Rural Education:

*The Mission of the Centre for TeleLearning and Rural Education is to facilitate research and development with a special focus on effective utilization of information and communications technologies as well as promote excellence in teaching and learning in small rural schools across the islands, regions and countries of the North Atlantic Rim; and, in particular, the Province of Newfoundland and Labrador.*<sup>67</sup>

The Strategic Plan examined the Challenges and Opportunities that provided a context for future research and development activities of the Centre for TeleLearning and Rural Education. As a result, **five** Strategic Directions were identified and the Actions that would be required in order to implement these Strategic Directions. In addition, the Strategic Plan outlined the human and financial resources that would be required to implement the Strategic Directions and Actions as well as a list of potential Strategic Partners.<sup>68</sup>

In May 2001, the Dean of Education appointed a four member Review Panel to conduct a formative review of the Centre for TeleLearning and Rural Education as part of Memorial University's systematic review of all academic units and programs. The members of the Review Panel were Dr. Jean Brown (Chair), Dr. William Kennedy, Harvey Weir and René Wicks. The Mandate of the Review Panel was to examine all aspects of the Centre for TeleLearning and Rural Education and to ascertain the degree to which the Centre was meeting the purposes for which it was originally established. During the 2001-02 academic year, the Review Panel conducted consultations with six focus groups and

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<sup>66</sup> Ibid. p.41

<sup>67</sup> Centre for TeleLearning and Rural Education, Faculty of Education, Memorial University of Newfoundland. ***Navigating the North Atlantic Rim: A Strategic Plan***. April 2000, p. 2

<sup>68</sup> Ibid.

conducted four structured interviews. In total, approximately **50** individuals were consulted. In addition to the consultations, Dr. Ken Stevens provided the Review Panel with a self-study report, *The Centre for TeleLearning and Rural Education – A Review of the First Five Years* (November 2001). The Review Panel also reviewed ***Navigating the North Atlantic Rim – A Strategic Plan*** that was completed in April 2000. As well, the Review Panel examined *A Status Report Related to Projects/Activities/Events* that was prepared by Wilbert Boone.

On May 14, 2002, the Review Panel submitted a very comprehensive report. Part One of the report examined the original objectives and the major activities of the Centre for TeleLearning and Rural Education which revealed that the activities were in four broad areas: research, development and evaluation; teacher education; professional development; and the development of strategic partnerships. Part Two of the report articulated a new vision for the Centre for TeleLearning and Rural Education. The Review Panel made **thirty-two** recommendations.<sup>69</sup> Some of the more significant recommendations were as follows:

**Recommendation 1:** *That the Centre for TeleLearning and Rural Education be continued as a research centre and restructured.*

**Recommendation 2:** *That the name of the Centre be changed to “The Centre for E-Learning and Rural Education” (CERE).*

**Recommendation 3:** *That the senior administration of the University, through the Office of the Vice-President (Academic) take the lead within the University in creating a world class Research Centre for E-Learning and Rural Education, with an emphasis on K-12 and rural schools.*

**Recommendation 4:** *That the CERE be formally set up as a research centre within Memorial University, following the University’s **Policies and Procedures for the Establishment of University Institutes and Centres** (April 2001) and included in Memorial University’s **Strategic Framework and Action Plan**, complete with sub-actions and timelines, in the appropriate sections pertaining to its research role.<sup>70</sup>*

Unfortunately, the Centre for TeleLearning and Rural Education was **not** formally established as a research centre within Memorial University’s ***Policies and Procedures for the Establishment of University Institutes and Centres***. As a result, the support for the Centre was greatly diminished with the resignations of Dr. Jaap Tuinman, Vice-President (Academic) and Dr. Terry Piper, Dean of Education. After the departure of Dr. Tuinman and Dr. Piper, it soon became

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<sup>69</sup> Faculty of Education, Memorial University of Newfoundland. ***Report of the Review Panel on the Centre for TeleLearning and Rural Education***. May 14, 2002.

<sup>70</sup> Ibid. p. 28-32

apparent that the senior administration at Memorial University was not committed to retaining the Centre for TeleLearning and Rural Education since it was perceived as their project. In fact, the Acting Dean and the new Dean of Education showed very little interest in the Centre for TeleLearning and Rural Education. Apparently, there was very little support from the senior administration to restructure the Centre for TeleLearning and Rural Education as the **Centre for E-Learning and Rural Education** as a special project of the Vice-President (Academic) under the sponsorship of the Dean of Education.

## 9. The Virtual Teacher Centre, Newfoundland and Labrador Teachers' Association

During the fall of 1999, Mr. René Wicks, an Administrative Officer in the Professional Development Division of the Newfoundland and Labrador Teachers' Association developed a Concept Paper proposing the establishment of a **Virtual Teacher Centre** that would provide province-wide on-line professional development opportunities for primary, elementary and secondary educators. The major educational stakeholders such as the Department of Education, School District Offices, and the Faculty of Education including the Centre for TeleLearning and Rural Education at Memorial University endorsed this initiative. In addition, the School of Continuing Education at Memorial University and STEM~Net: Student/Teacher Educational Multimedia Network supported the efforts of the Professional Development Division to enhance the professional development opportunities for teachers. Furthermore, a private sector company, the Johnson Foundation Inc., supported this innovative project with a financial contribution to enhance the professional development opportunities for teachers in rural and remote communities of Newfoundland and Labrador.<sup>71</sup>

During the winter/spring of 2000, the Professional Development Division of the NLTA developed a detailed Funding Proposal for the development of a province-wide on-line professional development resource entitled **The Virtual Teacher Centre**. In the spring of 2000, the Professional Development Division submitted the funding proposal to Office of Learning Technologies (OLT), Human Resources Development Canada, requesting a financial contribution under the Community Learning Networks (CLN) Initiative. The Funding Proposal stated that it was anticipated that the Virtual Teacher Centre would become a major component of professional development in Newfoundland and Labrador. In

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<sup>71</sup> Professional Development Division, Newfoundland and Labrador Teachers' Association. *The Virtual Teacher Centre – Proposal for the Development of a Province-Wide On-line Professional Development Resource*. 1999.

essence, this innovative project would allow a variety of partners to achieve key goals within their mandates and provide much needed outreach to teachers, regardless of geographic location. Furthermore, the project was totally consistent with recent thinking on interagency collaboration and should foster effective and innovative use of modern technologies.<sup>72</sup>

On October 18, 2000, the Minister of Human Resources Development, Government of Canada, informed the Professional Development Division of the NLTA that a financial contribution had been approved for this three-year innovative project. As a result of the financial contribution provided by the Government of Canada through the Office of Learning Technologies, the Newfoundland and Labrador Teachers' Association began recruiting staff for the Virtual Teacher Centre. After a comprehensive selection and interview process, Alex Hickey was hired as the Coordinator of the Virtual Teacher Centre. Since April 2001, he has been responsible for the design, development and management of the Virtual Teacher Centre. In addition, the NLTA hired Brian Pittman as the Web Developer/ Programmer for the Virtual Teacher Centre in the spring of 2001. He has been responsible for the graphics design, development, implementation, and maintenance of the Website for the Virtual Teacher Centre.

The research and development of a comprehensive Website for the Virtual Teacher Centre began in the spring of 2001. Subsequently, the first version of the Website: <http://www.virtualteachercentre.ca> was available to educators at the beginning of the 2001-02 school year. As a result, educators were able to access on-line professional growth opportunities from any location, at any time, provided they had Internet connectivity.

On November 23, 2001, the Newfoundland and Labrador Teachers' Association officially launched the Virtual Teacher Centre as a new entity established within the Professional Development Division of the NLTA. As a result, the NLTA was a leader among teacher organizations in Canada since the Virtual Teacher Centre was the first of its kind in the country. In fact, the NLTA was a leader among teacher organizations globally as a result of initiating this innovative venture in developing and delivering on-line professional development for primary, elementary and secondary educators throughout Newfoundland and Labrador.

The Virtual Teacher Centre was based on a conceptual model of delivering on-line professional development opportunities to educators in the workplace using

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<sup>72</sup> Ibid.

the principles of adult learning and the interactivity of the Internet. This conceptual model included **three** components:

- **Professional Development** – A variety of directed learning activities, developed in-house and/or in partnership, aimed at new skill acquisition and skill development.
- **Learning Portal** – A Website that offers learners consolidated access to learning, training and information from multiple sources; and
- **Knowledge Management** – Capturing, organizing and storing knowledge and experiences of members of the group and making it available to others in the organization.

The mandate of the Professional Development Division of the NLTA is to provide quality professional development programs and services for all members of the Association. The Professional Development Division has a commitment to the promotion of the professional excellence and personal well-being of teachers. Furthermore, the Professional Development Division is responsible for supporting teachers in meeting the challenges of teaching in the 21<sup>st</sup> Century.

The Virtual Teacher Centre, as an integral part of the Professional Development Division, had a mandate to develop, facilitate and deliver on-line professional development opportunities for educators who were employed in the primary, elementary and secondary school system. In essence, the mandate of the Virtual Teacher Centre enhanced and complemented the mandate of the Professional Development Division of the NLTA.

Meanwhile, the Virtual Teacher Centre established a number of strategic partnerships and alliances with other educational agencies and organizations such as the Centre for Distance Learning and Innovation of the Department of Education, school districts, and SchoolNet. In fact, the Virtual Teacher Centre cultivated **three** partnership initiatives that included significant financial contributions from the Government of Canada and the Government of Newfoundland and Labrador.

On December 18, 2002, the Department of Education signed a Memorandum of Understanding with the Newfoundland and Labrador Teachers' Association focusing on an effective collaborative process for the development and delivery of on-line professional development for teachers throughout Newfoundland and Labrador. In essence, the Memorandum of Understanding established a partnership between the Centre for Distance Learning and Innovation and the Virtual Teacher Centre that would ensure a co-ordinated approach to the development and delivery of on-line professional development. As a result of this

partnership, the salary of the Coordinator of the Virtual Teacher Centre was cost-shared between the Department of Education and the Newfoundland and Labrador Teachers' Association.

On July 24, 2003, the Minister of State for the Atlantic Canada Opportunities Agency, Government of Canada, and the Minister of Industry, Trade and Rural Development, Government of Newfoundland and Labrador, announced a significant financial contribution under the Canada-Newfoundland Comprehensive Economic Development Agreement to the Newfoundland and Labrador Teachers' Association for the Virtual Teacher Centre to develop and pilot the delivery of a on-line professional development course in Information, Communications and Learning Technologies (ICLT). This initiative focused on enhancing ICLT knowledge and skills for teachers and community leaders in rural communities.

As a result of this ICLT initiative, the Virtual Teacher Centre entered into a strategic partnership with **two** school districts and **two** regional economic development boards. Specifically, the Virtual Teacher Centre partnered with the Northern Peninsula – Labrador South School District in collaboration with the Red Ochre Regional Economic Development Board and the Baie Verte – Central – Connaigre School District in collaboration with the Coast of Bays Regional Economic Development Board where their geographic boundaries overlap. This ICLT initiative was an excellent example of partnerships between education and community economic development. This project also illustrated the importance of ICLT knowledge and skills to enhance the potential for knowledge-based economic initiatives in rural communities.

The ICLT professional development course consisted of **twenty** on-line modules that were delivered first through face-to-face training sessions with **24** teachers in the two school districts and **24** representatives from the two corresponding regional economic development boards. These on-line ICLT modules ranged from an Introduction to the World Wide Web to Web Page Design and Development. This funding had also enabled the Virtual Teacher Centre to purchase 12 laptop computers to facilitate the delivery of ICLT to other teachers and community leaders in the future.

In the 2003-04 school year, the Virtual Teacher Centre was provided with a significant financial contribution from Industry Canada through SchoolNet for the design and development of ***Interactive Modules in the Application of Current Research to the Classroom***. This initiative involved a partnership between the Virtual Teacher Centre, the New Brunswick Teachers' Association and the

Department of Education in Newfoundland and Labrador. This innovative project involved the design and development of **ten** interactive, media-rich modules of three-to-five lesson duration. These modules focused on current research and pedagogical understandings in the following areas: Multiple Intelligences; Brain-based Learning; Learning and Teaching Styles; Taxonomy and Learning Outcomes; Learning Strategies and Diverse Learners; Constructivism; Planning Effective Instruction; Interactive Instruction; Methods to Enhance Instruction; and Authentic Assessment. Subsequently, these modules were accessible to all primary, elementary and secondary educators throughout the provinces of New Brunswick and Newfoundland and Labrador. Furthermore, these modules were accessible to pre-service teachers in the Faculty of Education.

Meanwhile, one of the requirements of the Office of Learning Technologies (OLT) in order to obtain funding under the **Community Learning Networks (CLN) Initiative** was that a third-party contractor would conduct an external evaluation. The Funding Proposal submitted to the OLT indicated that an External Evaluator would be contracted to evaluate the Virtual Teacher Centre including the development of an Evaluation Framework and the preparation of a Final Report. Furthermore, the Funding Proposal stated that the evaluation process would be directed by an Advisory Committee, working in close collaboration with the Project Coordinator of the Virtual Teacher Centre and the Administrative Officers in the Professional Development Division of the NLTA.

After the financial contribution was awarded on October 18, 2000, the Professional Development Division of the NLTA contracted North Atlantic TeleLearning Associates Inc. to conduct an external evaluation of the Virtual Teacher Centre. As the Managing Director of North Atlantic TeleLearning Associates Inc., Wilbert Boone had extensive involvement in the primary, elementary and secondary education system as a teacher, curriculum consultant and administrator in the areas of program development and implementation, professional development and distance learning/on-line learning. As the External Evaluator, Mr. Boone facilitated the evaluation process in collaboration with Alex Hickey, Coordinator of the Virtual Teacher Centre, and René Wicks, Administrative Officer, Professional Development Division of the NLTA.

The Funding Proposal submitted to the Office of Learning Technologies (OLT) indicated that the evaluation data would comprise a combination of qualitative and quantitative data that would be used for both formative and summative purposes. As a result, the External Evaluator in consultation with Alex Hickey and René Wicks designed and developed a formative evaluation instrument, **On-line Professional Development: A Teacher Survey**, to collect data related to the

on-line professional development activities that were being developed for delivery by the Virtual Teacher Centre during the fall of 2001. During the winter of 2002, it was decided to send the **Teacher Survey** to all members of the NLTA rather than a “stratified random sample”. Therefore, all members of the NLTA were requested to complete the **Teacher Survey** and return it to the Professional Development Division of the NLTA by **March 15, 2002**. The **Teacher Survey** was completed by **411** members of the NLTA for a response rate of **6.56%** based on the number of full-time equivalent teachers for the 2001-02 school year. These responses represented **83** schools and **7** School District Offices.<sup>73</sup>

This formative evaluation provided valuable information regarding the number of primary, elementary and secondary educators who had access to the Internet; some insight related to the integration of ICLT into the teaching and learning process; support for the development and maintenance of a distinct Web site for each of the Special Interest Councils; indicated that educators were enrolled in on-line programs and courses delivered by provincial, national and international post-secondary institutions; and, identified the priorities of educators related to on-line professional development opportunities that were under consideration for development by the Virtual teacher Centre.

Meanwhile, the summative evaluation of the Virtual Teacher Centre included the collection and analysis of both quantitative and qualitative data. The focus of the summative evaluation process was on the effectiveness and penetration of the Virtual Teacher Centre within the primary, elementary and secondary school system during the piloting phase. It is important to note that the Office of Learning Technologies (OLT) provided a financial contribution for a three-year period from **October 18, 2000** to **October 31, 2003** and considered the Virtual Teacher Centre as an innovative pilot project. As a result, the piloting phase of the Virtual Teacher Centre was completed in the fall of 2003.

During the 2003-04 school year, the External Evaluator in consultation with Alex Hickey and René Wicks conducted a summative evaluation of the Virtual Teacher Centre. As a result of the research conducted relating to the evaluation of educational websites, the External Evaluator designed and developed a summative evaluation instrument, **Survey of Registered Users**, to collect quantitative data relating to the Website that had been designed and developed for the Virtual Teacher Centre. The purposes of the **Survey of Registered Users** were:

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<sup>73</sup> Boone, W. North Atlantic TeleLearning Associates, Inc. *The Virtual teacher Centre –An External Evaluation Report*. February 2004.

- To evaluate the **content** of the Virtual Teacher Centre based on established criteria for evaluating educational websites such as appropriateness, credibility, accuracy, objectivity, coverage, currency and relevance;
- To evaluate the **usability** of the Virtual Teacher Centre based on established criteria for evaluating educational websites such as navigation, visual presentation and accessibility; and
- To provide feedback related to the **usefulness** of the Website and the various on-line professional development activities that have been developed.<sup>74</sup>

The Virtual Teacher Centre maintained a password protected, digital portfolio for each educator who accessed the on-line professional development activities. This portfolio tracked the learning activities of the registered users. Membership was free, and available to virtually anyone in the education community. As of January 30, 2004, there had been **1776** educators who had registered with the Virtual Teacher Centre; however, the user list indicated that a significant number of these Registered Users did **not** access the Virtual Teacher Centre on a regular basis.

During the early fall of 2003, it was decided to send a copy of the **Survey of Registered Users** to all educators who had registered with the Virtual Teacher Centre rather than a “stratified random sample. Therefore, all Registered Users of the Virtual Teacher Centre were requested to complete the **Survey of Registered Users** and return it to the Professional Development Division of the NLTA by **October 20, 2003**. Unfortunately, only **fourteen** of the Registered Users of the Virtual Teacher Centre completed the **Survey of Registered Users** and returned it to the Professional Development Division of the NLTA as requested. Consequently, it was decided to contact a number of Registered Users to determine if they were willing to participate in a telephone interview. As a result, an additional **thirty-six** Registered Users completed the survey via a telephone interview in January 2004. North Atlantic TeleLearning Associates Inc. hired Heidi Wicks, a student who was enrolled in the Faculty of Education at Memorial University to conduct the telephone interviews as well as code data and enter the results into a database [Statistical Package for the Social Sciences (SPSS)] for the **fifty** completed surveys.

Subsequently, the External Evaluator analyzed the responses of the **fifty** Registered Users who rated the **CONTENT, USABILITY** and **USEFULNESS** of

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<sup>74</sup> Ibid. p.30

the Virtual Teacher Centre's Website. The data indicated that **80.6%** the Registered Users who were surveyed rated the **CONTENT** of the Website as Good, Very Good or Excellent based on the specific evaluation criteria of appropriateness, credibility, accuracy, objectivity, coverage, currency, and relevance; **87.6%** rated the **USABILITY** of the Website as Good, Very Good or Excellent based on the specific evaluation criteria of navigation, visual presentation and accessibility; and **88.4%** rated the **USEFULNESS** of the on-line professional development activities located in the **four** main menus as Useful, Very Useful or Extremely Useful. A detailed analysis of the quantitative data was included in *The Virtual Teacher Centre - External Evaluation Report*.<sup>75</sup>

In early January 2004, the External Evaluator in consultation with René Wicks and Alex Hickey designed and developed an **Interview Protocol** that would be used to interview a number of educators in the primary, elementary and secondary school system. In addition, the External Evaluator collaborated with Dr. Jean Brown regarding the structure of the **Interview Protocol**. As a result, the open-ended questions used in the interviews were as follows:

1. What impact has the Virtual Teacher Centre had on professional development opportunities for educators?
2. What are some of the main strengths and weaknesses of the Virtual Teacher Centre?
3. What are some of the implications for:
  - a. Professional development delivered by the Newfoundland and Labrador Teachers' Association
  - b. Professional development delivered by the Department of Education
  - c. Professional development delivered by your school district
  - d. The Faculty of Education, Memorial Universityas a result of the establishment of the Virtual Teacher Centre?
4. How can the Virtual Teacher Centre be sustained in the long-term?
5. Recommendations

Meanwhile, the External Evaluator in consultation with Alex Hickey and René Wicks identified a list of primary, elementary and secondary educators to be interviewed. A total of **sixty-eight** educators were identified for interviews; however, it was only possible to interview **forty-four** educators due to time constraints and the fact that some educators were unable or unwilling to participate in an interview. Subsequently, North Atlantic TeleLearning Associates

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<sup>75</sup> Ibid. p.30-51

Inc. contracted Rachel Handrigan to conduct the interviews. During late January and early February 2004, Ms. Handrigan conducted interviews either face-to-face or via telephone. In some instances, the educators were sent the **Interview Protocol** and they completed it electronically. In addition, Ms. Handrigan audio taped and transcribed all the face-to-face and telephone interviews.

An analysis of the qualitative data collected through interviews indicated that the on-line professional development model that was being developed and implemented by the Virtual Teacher Centre was being institutionalized. Specifically, the **Professional Development Alliance** considered the Virtual Teacher Centre as a permanent entity within the Professional Development Division of the NLTA. In essence, there was an acceptance by the educational stakeholders that the Virtual Teacher Centre would deliver on-line professional development opportunities to primary, elementary and secondary educators throughout Newfoundland and Labrador. The External Evaluation Report included the perspectives of the President, Past President and some members of the Executive Council as well as some members of the professional staff of the Newfoundland and Labrador Teacher's Association; officials of the Department of Education who were interviewed including some of the staff of the Centre for Distance Learning and Innovation; the majority of Assistant Directors (Programs) and a number Program Specialists at School District Offices; and, members of the Faculty of Education, Memorial University.<sup>76</sup>

Meanwhile, the educators who participated in the interviews were asked to identify the main strengths of the Virtual Teacher Centre. The External Evaluation Report included a detailed list of the strengths in alphabetical order in the following categories: accessibility, appropriateness, collaboration, coverage, credibility, currency, innovation, leadership and partnerships. The educators were also asked to identify the main challenges of the Virtual Teacher Centre. The External Evaluation Report also included a detailed list of the challenges in alphabetical order in the following categories: content, implementation, Internet connectivity, navigation, promotion and sustainability.<sup>77</sup>

In addition, the External Evaluation Report included a detailed examination of the implications for professional development as a result of the establishment of the Virtual Teacher Centre. Based on an analysis of the interviews with educators, the External Evaluator outlined the implications for the Professional Development

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<sup>76</sup> Ibid. p. 54-60

<sup>77</sup> Ibid. p. 60-70

Division of the NLTA including Special Interest Councils; the implications for professional development that is developed and delivered by the Department of Education; and, in particular, the Program Development Division and the Student Support Services Division of the Primary, Elementary and Secondary Branch; the implications for professional development that is developed and delivered by the professional staff at School District Offices; and the implications for the Faculty of Education, Memorial University. Meanwhile, the long-term sustainability of the Virtual Teacher Centre was outlined in considerable detail in the External Evaluation Report including **twenty-one** recommendations for consideration by the Executive Council of the NLTA, the Professional Development Division and the Virtual Teacher Centre.<sup>78</sup>

## 10. The Centre for Distance Learning and Innovation, Department of Education

On August 19, 1999, the Government of Newfoundland and Labrador appointed a Ministerial Panel on Educational Delivery in the Classroom. One of the Terms of Reference of the Ministerial Panel on Educational Delivery in the Classroom was to “examine the current educational delivery model and consider alternate approaches”.<sup>79</sup> In essence, the Ministerial Panel recommended that the Department of Education establish a **Centre for Distance Learning and Innovation** for the Province of Newfoundland and Labrador. The Ministerial Panel also recommended a new model for distance learning that utilizes, where appropriate and feasible, a web-based approach involving information and communications technologies (ICT) and the Internet. On March 31, 2000, the Final Report of the Ministerial Panel, **Supporting Learning**, included a number of recommendations related to distance learning such as:

*That the province embark on a program to substantially increase the scope of distance education offerings in the schools through the establishment of a “Centre for Distance Learning and Innovation”.*

*That the Centre for Distance Learning and Innovation consist of a number of teachers, who may be termed Electronic Teachers or E-teachers, with primary responsibility for course delivery and evaluation and that, at the school level, teachers be assigned from the regular school allocation as mediating teachers to ensure appropriate interaction between students and E-teachers.<sup>80</sup>*

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<sup>78</sup> Ibid. p. 71-79

<sup>79</sup> Department of Education. **Supporting Learning**. Final Report of the Ministerial Panel on Educational Delivery in the Classroom. St. John’s: Government of Newfoundland and Labrador. March 2000. P. 2

<sup>80</sup> Ibid. P.65

During the 2000-01 school year, the Department of Education recruited Wade Sheppard, Director of Education for the Vista School District as the Director of the Centre for Distance Learning and Innovation. The Department of Education also appointed an Implementation Team to provide advice and direction to the Director in the development and implementation of the Centre for Distance Learning and Innovation. As a result, a Concept Paper including Phase I of an Implementation Plan was prepared which reflected the recommendations of the Ministerial Panel. The Concept Paper articulated the Mandate of the Centre for Distance Learning and Innovation as follows:

- *To increase learning opportunities and career options for students; particularly those in small and isolated schools;*
- *To develop and deliver e-learning programs and services for students and teachers, and in particular, the CDLI will:*
  - *develop and deliver courses for senior high school students;*
  - *develop and deliver professional development programs for primary, elementary and secondary teachers;*
  - *provide programs and services for other adult learners using the Internet; and*
  - *develop and export educational products and services.*<sup>81</sup>

In December 2000, the Centre for Distance Learning and Innovation was founded under the jurisdiction of the Primary, Elementary and secondary Branch of the Department of Education. However, the Government of Newfoundland and Labrador did not formally announce the establishment of a Centre for Distance Learning and Innovation until March 13, 2001 in the Speech from the Throne. Subsequently, the Department of Education in partnership with the Faculty of Education established the headquarters of the Centre for Distance Learning and Innovation in the G. A. Hickman Building in close proximity to the Centre for TeleLearning and Rural Education, the STEM~Net Suite of Offices as well as the Offices of Distance Education and Learning Technologies, Memorial University.

Meanwhile, one of the major challenges for the Centre for Distance Learning and Innovation was the integration of STEM~Net's telecommunications infrastructure as well as the human and financial resources since STEM~Net functioned as an autonomous entity under the Office of the Vice-President (Academic) of Memorial University. During the 1990s, the Director of STEM~Net administered the programs, projects and services with some advice and guidance provided by the

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<sup>81</sup> Department of Education. *Centre for Distance Learning and Innovation – Concept Paper and Phase I Implementation Plan*. June 2000.

STEM-Net Advisory Board. In the late 1990s, the Department of Education provided a significant financial contribution for the operation of STEM-Net since the financial assistance under the Canada/Newfoundland COOPERATION Agreement on Human Resource Development had expired on March 31, 1998. In order for the Centre for Distance Learning and Innovation to deliver senior high school courses on-line to students in small rural schools, the Centre for Distance Learning and Innovation needed access to STEM-Net which was a **digital** network. In essence, it was critical that the telecommunications infrastructure acquired for STEM-Net as well as the human and financial resources of STEM-Net become integral components of the Centre for Distance Learning and Innovation in order to provide an effective “E-Learning Environment” for senior high school students in small rural schools throughout Newfoundland and Labrador.

According to the Website, the Vision of the Centre for Distance Learning and Innovation is 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;*
- *eliminate geographical and demographic barriers as obstacles to broad, quality educational programs and services; and*
- *develop a culture of e-learning in our schools which is considered to be an integral part of school life for all teachers and students.*<sup>82</sup>

During the 2001-02 school year, the Centre for Distance Learning and Innovation began to phase out the senior high school courses offered to students in small rural schools via the TETRA Network. In essence, the senior high school courses in Advanced Mathematics, Physics, Chemistry and French had to be re-designed in order for students to access these courses in a web-based environment. In addition, the Centre for Distance Learning and Innovation began to design and develop other senior high school courses for delivery in an e-learning environment. As a result, the Centre for Distance Learning and Innovation was offering **18** senior high school courses on-line to **74** small rural schools across Newfoundland and Labrador in the 2002-03 school year.

Meanwhile, it is important to note that Maurice Barry, Program Development Specialist with the Centre for Distance Learning and Innovation, facilitated the re-design of the courses for delivery in a web-based environment. It should also be noted that Mr. Barry was a Distance Education Instructor in Physics for a number

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<sup>82</sup> Website: <http://www.cdli.ca>

of years using the TETRA Network. In addition, he facilitated the design and development of the Advanced Placement Physics course for on-line delivery using the **Vista School District Digital Intranet**. As well, he was the instructor for Physics 4224 during the 1998-99 and 1999-00 school years. As a result, Mr. Barry had considerable knowledge related to making the transition from “TeleLearning Environment” using an **analog** network (TETRA Network) to an “E-Learning Environment” using a **digital** network (STEM~Net).

In a *Press Release* dated October 30, 2002, Premier Roger Grimes and the Honourable Judy Foote, Minister of Education, announced the official launch of the Centre for Distance Learning and Education. In the same *Press Release*, the Minister of education announced that the Department of Education had reached an agreement with Aliant Telecom to provide an e-learning network that would connect schools together and provide bandwidth speeds up to **20** times the current levels. In addition, the *Press Release* stated that for a small number of sites that the Centre for Distance Learning and Innovation would be partnering with the Burgeo Broadcasting System to provide radio and satellite technology and Smart Labrador to provide satellite technology.<sup>83</sup>

In order for the Centre for Distance Learning and Innovation to provide an effective “E-Learning Environment” to senior high school students in small schools in rural and remote communities, there was a need to improve the STEM~Net telecommunications infrastructure, in particular, there was a critical need to increase the bandwidth to enable a faster and more reliable network. As indicated earlier, this was a major challenge when the Centre for TeleLearning and Rural Education in partnership with STEM~Net and the Vista School District established the **Vista School District Digital Intranet** during the 1998-99 school year. In fact, one of the major challenges of the research project was the lack of bandwidth available for audio and video conferencing in small rural schools under the jurisdiction of the Vista School District.

On September 5, 2002, the Minister of Industry launched the Broadband for Rural and Northern Development (BRAND) Pilot Program in response to the recommendations contained in the Report of the National Broadband Task Force, ***The New National Dream: Networking the Nation for Broadband Access***, which was submitted to the Minister of industry in June 2001.<sup>84</sup> In order

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<sup>83</sup> Department of Education. ***Government Launches Centre for Distance Learning and Innovation***. October 30, 2002.

<sup>84</sup> Industry Canada. ***The New National Dream: Networking the Nation for Broadband Access***. Report of the National Broadband Task Force. June 2001.

to accomplish the goal of ensuring that broadband networks and services would be available to businesses and residents in every Canadian community by the year 2004, the Government of Canada recognized that access to broadband networks and services in First Nation, Inuit, rural and northern communities was unlikely to be available without some form of government assistance. Furthermore, the federal government recognized that in the 21<sup>st</sup> century, access to broadband networks and services were necessary to create jobs, to provide quality education and health care, and to help maintain the vitality of rural and northern communities. On December 17, 2002, an arm's-length National Selection Committee was appointed to recommend proposals for funding to the Minister of Industry based on the analysis of proposals by Industry Canada's staff, along with input from other government departments and provincial and territorial governments.

Since the launch of the BRAND Pilot Program in September 2002, it is estimated that at least **\$23,053,856** has been provided to build **ten** broadband networks affecting **167** rural and northern communities in Newfoundland and Labrador. In essence, the BRAND Pilot Program provided up to **50** percent of the funding to implement the business plans and build the broadband infrastructure. The remaining **50** percent of the funding required to implement the business plans and build the broadband infrastructure was provided by the Atlantic Canada Opportunities Agency (ACOA) under the Strategic Community Investment Fund (\$4,168,634), the Government of Newfoundland and Labrador through the Department of Innovation, Trade and Rural Development (\$544,666), the Community Champions and their partners, and the private sector partners – Aliant Inc. and Persona Communications Inc.

On the island of Newfoundland, there are a number of geographical regions and a significant number of rural communities which have access to broadband networks and services as a result of the BRAND Pilot Program such as the Bay de Verde Peninsula and the Southeast Avalon Peninsula. However, there are a large number of rural communities in various geographical regions – Burin Peninsula, Bonavista Peninsula, Baie Verte Peninsula, Green Bay, White Bay, Bonne Bay and Bay St. George – which do **not** have access to broadband networks and services. It appears that some schools located in rural and remote communities have access to broadband networks and services while other schools still use dial-up, a frame relay service or satellite technology to access the Internet. For example, some schools are connected via 10 Megabit fibre whereas other schools have Digital Subscriber Lines (DSL) which is 20 times slower on the outbound link. As a result of the BRAND Pilot Program, there is a "broadband divide" in the Newfoundland and Labrador school system.

On March 31, 2004, the Final Report of the National Selection Committee, ***Stronger Communities for a Stronger Canada: The Promise of Broadband***, stated that broadband is a fundamental infrastructure for building Canadian nationhood in the 21<sup>st</sup> century similar to the role played in the past by other great revolutions in transportation and communications. However, the National Selection Committee stated that this potential will only be realized when broadband networks are available in all Canadian communities, and Canadian residents and businesses have affordable access to broadband services – whether they live in our major cities, in rural and northern areas, or in the smaller cities, towns and villages that lie in between. In addition, the National Selection Committee expressed concern that the BRAND Pilot Program inadvertently created a “broadband divide” among First nations, Inuit, Métis, rural and northern communities or left “broadband orphans” forever stranded outside the net. Furthermore, the National Selection Committee believed that the federal government should urgently consider what kinds of actions are required to overcome the digital isolation of provinces and territories, such as Newfoundland and Labrador and the Yukon, that have good internal broadband connections, but lack adequate links to the rest of Canada and the outside world.<sup>85</sup>

In a *Press Release* dated June 20, 2003, the Department of Education announced that the Government of Newfoundland and Labrador in partnership with the Government of Canada announced a \$15 million initiative to expand high-speed broadband access to rural and remote schools and communities in Newfoundland and Labrador. Specifically, the Government of Newfoundland and Labrador through the Department of Education would provide \$5 million to expand and improve the delivery and accessibility of programs and services offered by the Centre for Distance Learning and Innovation to secondary students in rural and remote communities. The Government of Canada’s contribution of \$5 million would be provided under the *Canada Strategic Infrastructure Fund*. Through a call for Expressions of Interest, the federal and provincial governments would seek private sector involvement to provide the broadband infrastructure and to match or exceed the \$5 million investment from each level of government.<sup>86</sup> It appears that this \$15 million initiative in broadband infrastructure for rural and remote schools and communities did **not** proceed due to a change in the provincial government on November 6, 2003.

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<sup>85</sup> Industry Canada. ***Stronger Communities for a Stronger Canada: The Promise of Broadband***. Final Report of the National Selection Committee, March 2004.

<sup>86</sup> Department of Education. ***Government of Canada and Government of Newfoundland and Labrador partner to fund Broadband Access to Rural and Remote Schools and Communities***. June 20, 2003

In February 2005, an External Consultant contracted by the Department of Innovation, Trade and Rural Development and Industry Canada in Newfoundland and Labrador, in collaboration with the Atlantic Canada Opportunities Agency, prepared a background document, ***Setting the Context for a Federal-Provincial Broadband Strategy***, which provided a comprehensive overview of the current state of broadband data/telecommunications infrastructure in the Province of Newfoundland and Labrador. It appeared that a Federal-Provincial Broadband Panel was established to develop and advance a cohesive and coherent approach to broadband deployment in order to provide broadband connectivity to **all** communities throughout Newfoundland and Labrador.<sup>87</sup>

The author of the background document, ***Setting the Context for a Federal-Provincial Broadband Strategy***, concluded that Newfoundland and Labrador has a variety of networks or quasi-networks maintained by various public sector bodies and private sector entities. In addition, the author stated that these networks range from sophisticated well-supported networks (e.g., College of the North Atlantic) to small “patchwork” networks. Furthermore, the author stated that the Centre for Distance Learning and Innovation operated an educational network and purchased different forms of bandwidth ranging from dial-up, 512 Mbps and frame relay directly from Aliant Inc.; a 10 Mbps service from Persona Communications Inc.; and a variety of satellite services from other providers. Currently, there are **six** methods of connecting to the Network used by the Centre for Distance Learning and Innovation; however, these methods are not linked together which means that the Internet is still used for many of the services delivered by the Centre for Distance Learning and Innovation.

As a result of the establishment of the Centre for Distance Learning and Innovation and the integration of the telecommunications infrastructure, human and financial resources of STEM-Net, there has been a transformation of the distance learning environment in rural and remote schools throughout the province. Currently, the Centre for Distance Learning and Innovation offers **38** courses to senior high school students in **103** schools, primarily located in rural, remote and isolated communities across the province. In the 2007-08 school year, there are **31** E-teachers employed by the Centre for Distance Learning and Innovation. In a Canadian context, the Centre for Distance Learning and Innovation has demonstrated outstanding leadership in the use of information and communications technologies for **e-learning** in rural and remote schools in

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<sup>87</sup> Department of Innovation, Trade and Rural Development, Industry Canada, Atlantic Canada Opportunity Agencies. ***Setting the Context for a Federal-Provincial Broadband Strategy: The Current State of Broadband Data/Telecommunications Infrastructure in the Province of Newfoundland and Labrador***. February 2005.

Newfoundland and Labrador. Meanwhile, it has to be recognized that the Centre for Distance Learning and Innovation has an extremely knowledgeable and competent staff such as Maurice Barry, Program Development; Robert Hipditch, Program Delivery and School Services; Frank Shapleigh, Communication and Connectivity Services; Alex Hickey, Teacher Professional Development; Dale Fraser, Senior Systems Administrator; and, Brian Pittman, Programmer.

In June 2001, the National Broadband Task Force stated that the broadband revolution builds on **three** fundamental revolutions that have taken place in communications networks over the last quarter century. Those fundamental revolutions are: the **digital** revolution; the **network** revolution; and the **capacity** revolution.<sup>88</sup> In the primary, elementary and secondary school system (K-12) of Newfoundland and Labrador, the **digital** revolution began with the launch of the Lighthouse Schools Project in September 1990. As a result, all schools in the province were provided with computers and the majority of schools were provided with Local Area Networks during the 1990s. The **network** revolution had its beginning in the Newfoundland and Labrador school system with the launch of the Small Schools Distance Learning Project in September 1988; however, the launch of the Lighthouse Schools Project was the beginning of the Local Area Networks in the school system. In September 1993, the official launch of STEM~Net as a province-wide “digital network” and the official launch of SchoolNet as a national network for schools and libraries is considered to be the beginning the **network** revolution in the Canadian school system. The **capacity** revolution had its beginnings in **urban** schools when STEM~Net in partnership with Cable Atlantic launched the **Striving Towards Excellence in Learning by Linking Activities and Resources (STELLAR) Schools Project** in the mid-1990s. The STELLAR Schools Project was a high-speed educational networking project using a fibre/co-axial broadband cable network with 4 Mbps Internet connectivity that enabled school networks to transmit video, sound and graphics in a full multimedia networking environment. In the small **rural** schools, the **capacity** revolution had its beginnings when STEM~Net implemented the *DirecPC* Satellite Project in the 1997-98 school year. As a result of this initiative, the majority of small rural schools were provided with a *DirecPC* satellite dish (N=170) that provided a high-speed down-link from the Internet.

As a result of the Broadband for Rural and Northern Development (BRAND) Pilot Program which was launched by the Minister of Industry on September 5, 2002, the **capacity** revolution continues to evolve in rural and remote communities in

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<sup>88</sup> Industry Canada. *The New National Dream: Networking the Nation for Broadband Access*. Report of the National Broadband Task Force. June 2001.

Newfoundland and Labrador. In a *Press Release* dated September 15, 2005, the Department of Education announced that Centre for Distance Learning and Innovation was chosen to coordinate and administer a new \$24.9 million agreement among the Government of Canada, the Government of Newfoundland and Labrador and Persona Communications Corporation to provide broadband access to **68** schools and **103** communities in rural and remote regions of the province.<sup>89</sup> Consequently, the Centre for Distance Learning and Innovation is providing leadership in the **capacity** revolution. In fact, the legacy of the Centre for Distance Learning and Innovation will be enabling senior high school students in small rural and remote schools to access courses in an effective “E-Learning Environment” using a full multimedia (i.e., video, audio and graphics) networked environment.

## 11. The Killick Centre for E-Learning Research, Faculty of Education, Memorial University of Newfoundland

In March 2006, a community-university research alliance was established with core funding from the **Social Sciences and Humanities Council of Canada**, through the Community-University Research Alliance (CURA) Program. Its mission is to foster innovative research, training, and generation of new knowledge in the area of e-learning in the field of education, particularly as it relates to opportunities in rural, isolated areas. The focus is primary, elementary and secondary education (K-12), with recognition of the importance of transition years from secondary to post-secondary education. A number of research studies in e-learning funded under the CURA Program are referred to collectively as the Killick Project. Furthermore, the research supported by the Killick Project is broad in scope, and reflective of the priorities established through consultation with the community-university research alliance.

The “Killick” is a simple technological device crafted from local materials of wood and stone by early Newfoundland and Labrador sailors to anchor their boats when they travelled and worked in local waters. This anchor served these sailors well for centuries. Though no longer in practical use it still symbolizes the ingenuity and determination of a people to capitalize on local knowledge and resources. In charting new directions for teaching and learning through a sea of information and communications technologies, the Principal Investigator and other researchers will reach back to an earlier technology to keep them grounded. The name “Killick” suggests adaptability to this new environment and

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<sup>89</sup>Department of Education. *Agreement brings Broadband Access to Rural and Remote Schools and Communities in Newfoundland and Labrador*. September 15, 2005.

inspires innovation in approaching new opportunities. The Principal Investigator and other researchers will launch forth on solid educational research developed in cooperation with community partners. The “Killick” symbolizes the strength and determination of this unique community-university research alliance.

On February 21, 2007, the **Killick Centre for E-Learning Research** was officially launched at the Inco Innovation Centre, Memorial University. The Killick Centre is the administrative arm of the community-university research alliance and is located in the G. A. Hickman Building (commonly referred to as the Education Building), Memorial University. In essence, the Killick Centre is the anchor for this alliance in e-learning in which many partners will collaborate to develop a better understanding of the potential uses and effectiveness of new and emerging technologies in the K-12 education system.<sup>90</sup>

The Community-University Research Alliance has established **three** main goals:

- *Goal 1: Capacity Building*
- *Goal 2: Increasing the Amount of High Quality Research in E-Learning*
- *Goal 3: More Effective Knowledge Exchange in E-Learning*<sup>91</sup>

As a result of a Consultation Workshop Session held in July 2005, a number of Priority Research Themes were identified:

- *E-Learning Effectiveness – Practice and Philosophy*
- *Online professional Learning Communities*
- *History of E-Learning in Newfoundland and Labrador*
- *E-Learning and Aboriginal Students*
- *Transitions to Post-Secondary*
- *Leadership*<sup>92</sup>

Subsequently, a number of research studies were identified or endorsed as critical research areas as a result of the Consultation Workshop Session. In addition to the Principal Investigator, there are **fifteen** university and community investigators are engaged in the following research studies:

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<sup>90</sup> Faculty of Education. Memorial University of Newfoundland. ***Killick Project for E-Learning Research: A Community-University Research Alliance***. Brochure. February 21, 2007

<sup>91</sup> Ibid.

<sup>92</sup> Ibid.

- *Effectiveness of New Learning Technologies in Providing Education to Rural and Isolated Communities (Effectiveness Study)*
- *Innovative and Effective Practices in Online Learning (Classroom Study)*
- *Online Professional Learning Communities (OPLC) and Teacher Preparation (New Teacher Study)*
- *Perceptions of Distance Education in Newfoundland and Labrador over a Ten Year Period (Historical Study)*
- *Participation of High School Students in the Isolated Aboriginal Communities of Coastal Labrador in Web-delivered Learning (Aboriginal Study)*
- *The Impact of the Centre for Distance Learning and Innovation (CDLI) Course Participation on Student Transition into Post-secondary Education and/or the Workplace (Transition Study)*
- *District Leadership for the New Learning Environment (Leadership Study)*
- *Curricula Shifts in a Digital Age (Philosophical Study)<sup>93</sup>*

The Community-University Research Alliance includes the following partners:

- **Memorial University of Newfoundland**
  - The Faculty of Education
  - The Leslie Harris Centre of Regional Policy and Development
  - Distance Education and Learning Technologies
- **College of the North Atlantic**
  - Distributed Learning and Learning Technologies
- **Government of Newfoundland and Labrador**
  - Centre for Distance Learning and Innovation, Department of Education
  - Rural Secretariat, Executive Council
- **School Districts**
  - Eastern School District
  - Nova Central School District
  - Western School District
  - Labrador School District
  - Conseil Scolaire Francophone Provincial de Terre-Neuve et du Labrador
- **Newfoundland and Labrador Teachers' Association**

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<sup>93</sup> Ibid.

➤ Virtual Teacher Centre

- Newfoundland and Labrador School Boards Association
- Newfoundland and Labrador Federation of School Councils

This “Foundation Paper”, ***The Evolution of E-Learning in Small Rural Schools in Newfoundland and Labrador***, is intended as an integral component of the Priority Research Theme: *History of E-Learning in Newfoundland and Labrador*. Meanwhile, this “Foundation Paper” is based on a significant number of public reports and publications as well as the knowledge and experiences of the author (as outlined in the Preface) over a period of four decades as an educator in the primary, elementary and secondary school system in Newfoundland and Labrador.

## Summary

In the early 1980s, the Department of Education in collaboration with School Districts began the implementation of the “Reorganized Senior High School Program” which was designed for students who were enrolled in the larger central and regional high schools in Newfoundland and Labrador. In fact, the majority of these schools could offer a wide variety of the 104 courses that had been developed and these schools had a qualified staff of secondary teachers in most instances. Furthermore, the students in these schools were given an opportunity to select courses to match their abilities and interests as well as meet the Graduation Requirements.

Meanwhile, it was extremely challenging to implement the “Reorganized Senior High School Program” in many of the all-grade rural schools. In some instances, these small rural schools did not have the qualified teachers or facilities to offer some of the senior high school courses (e.g., Physics and Chemistry). In some schools, there weren’t a sufficient number of students to justify offering the course/program (e.g., Advanced Mathematics). In fact, the majority of students in these small rural schools would only be able to enrol in the courses that would meet the minimum Graduation Requirement (i.e., 36 credits). As a result, the “Reorganized Senior High School Program” contributed to the inequality of educational opportunity that already existed between students in the larger urban schools and the smaller rural schools.

In the mid-1980s, the Department of Education recognized that there were some serious challenges in small rural schools as a result of declining enrolments. In fact, the Department of Education commissioned Dr. Frank Riggs, Faculty of Education of Memorial University of Newfoundland, to conduct a study of small schools in the province in 1986. The Department of Education also appointed an Advisory Panel to assist Dr. Riggs. In January 1987, the *Final Report of the Small Schools Study Project* was submitted in to the Minister of Education. As a result of the recommendations contained in the *Final Report of the Small Schools Study Project*, the Department of Education established the Small Rural Schools Distance Learning Project in partnership with School Districts and the Telemedicine Centre in the Faculty of Medicine at Memorial University which operated the **Telemedicine and Educational Technology Resources Agency (TETRA) Network** - an **analog** network that used a combination of audio and computer text, data and graphics commonly referred to as audio-graphics technology. In fact, the distance learning model that was implemented in small rural schools was the beginning of **e-learning** in the school system.

During the early 1990s, there was substantial growth in distance learning in small rural schools in Newfoundland and Labrador. In fact, **85** small rural schools were connected to the TETRA Network from September 1988 to September 1996. However, the number of schools decreased as a result of school consolidation in some communities. In the 1996-97 school year, students enrolled in **74** small rural schools had the opportunity to study **11** courses in Advanced Mathematics, Physics, Chemistry and French via distance learning technologies. In September 1996, there were **1,020** course registrations. Students were being taught by **15.5** distance education instructors from **10** distance education instructor sites throughout the province in addition to the Distance Learning Centre located at the Telemedicine Centre, Faculty of Medicine, Memorial University. Meanwhile, the Department of Education provided additional teacher allocations for the Distance Learning Program from September 1988 to September 1996.

In May 1989, the Final Report of the Task Force on Mathematics and Science Education, ***Towards an Achieving Society***, articulated a number of issues related to computer education and included a number of recommendations. As a result, the Department of Education announced the “Lighthouse Schools Project” in the spring of 1990. In consultation with school districts, the Department of Education established **thirty-one** “Lighthouse Schools” in the 1990-91 school year. All of these “Lighthouse Schools” offered the Senior High School Program and the majority of these schools were larger **urban** schools throughout Newfoundland and Labrador. In essence, these “Lighthouse Schools” were supplied with appropriate computer hardware and software which enabled them

to establish a “Computer Laboratory” that included a Local Area Network. As a result of this strategic initiative, school districts established Local Area Networks in all schools which were offering the Senior High School Program in the early 1990s. In fact, this was the beginning of educational networking in the primary, elementary and secondary school system using **digital** technologies and another milestone in the evolution of **e-learning** in the school system.

In the early 1990s, Memorial University in partnership with the Atlantic Canada Opportunities Agency and the Department of Education established STEM~Net which was a province-wide educational network for educators in the primary, elementary and secondary school system in Newfoundland and Labrador. The programs and services provided by STEM~Net provided opportunities for teachers and their students to be engaged in a significant number of **e-learning** projects. As a result of the leadership provided by STEM~Net, Newfoundland and Labrador was the first Canadian province to have all schools connected to the Internet which was also another milestone in the evolution of **e-learning** in the primary, elementary and secondary school system.

In the late 1990s, a Centre for TeleLearning and Rural Education was established in the Faculty of Education at Memorial University. The Centre acted as a catalyst in the Faculty of Education for research and development in the areas of “TeleLearning” and “Rural Education” with a special focus on small schools in rural and remote communities in Newfoundland and Labrador. The Centre conducted and/or facilitated a number of innovative **e-learning** projects which enhanced the knowledge and understanding of educators who were engaged in the design and development of on-line courses for teachers as well as senior high school students. In essence, the research and development projects conducted and/or facilitated by the Centre contributed to the evolution of **e-learning** in the primary, elementary and secondary school system.

In the spring of 2000, the Professional Development Division of the Newfoundland and Labrador Teachers’ Association (NLTA) submitted a detailed Funding Proposal for the development of a province-wide on-line professional development resource entitled **The Virtual Teacher Centre** to Office of Learning Technologies, Human Resources Development Canada, requesting a financial contribution under the Community Learning Networks Initiative. On October 18, 2000, the Minister of Human Resources Development, Government of Canada, informed the Professional Development Division of the NLTA that a financial contribution had been approved for this three-year innovative project. As a result of the financial contribution provided by the Government of Canada, the NLTA officially launched the Virtual Teacher Centre as a new entity established within

the Professional Development Division on November 23, 2001. Consequently, the NLTA was a leader among teacher organizations in Canada since the Virtual Teacher Centre was the first of its kind in the country. In fact, the NLTA was a leader among teacher organizations globally as a result of initiating this innovative venture in developing and delivering on-line professional development for primary, elementary and secondary educators throughout Newfoundland and Labrador. In essence, the on-line professional development provided by the Virtual Teacher Centre has also contributed to the evolution of **e-learning** in the primary, elementary and secondary school system.

On August 19, 1999, the Government of Newfoundland and Labrador appointed a Ministerial Panel on Educational Delivery in the Classroom. On March 31, 2000, the Ministerial Panel submitted its Final Report, **Supporting Learning**, which included a number of recommendations related to distance learning. In fact, the Ministerial Panel recommended that the Department of Education establish a **Centre for Distance Learning and Innovation** for the Province of Newfoundland and Labrador. The Ministerial Panel also recommended a new model for distance learning that utilizes, where appropriate and feasible, a web-based approach involving information and communications technologies (ICT) and the Internet. Subsequently, the Department of Education in partnership with the Faculty of Education at Memorial University established the Centre for Distance Learning and Innovation. As a result of the establishment of the Centre for Distance Learning and Innovation and the integration of the STEM~Net telecommunications infrastructure, there has been a transformation of the distance learning environment in rural and remote schools throughout the province. Furthermore, the establishment of the Centre for Distance Learning and Innovation is significant milestone in the evolution of **e-learning** in small rural schools in Newfoundland and Labrador.

Currently, the Centre for Distance Learning and Innovation offers **38** courses to senior high school students in **103** schools, primarily located in rural, remote and isolated communities across the province. In the 2007-08 school year, there are **31** E-teachers employed by the Centre for Distance Learning and Innovation throughout the province. In a Canadian context, the Centre for Distance Learning and Innovation has demonstrated outstanding leadership in the use of information and communications technologies for **e-learning** in rural and remote schools in Newfoundland and Labrador.

In March 2006, a community-university research alliance was established with core funding from the Social Sciences and Humanities Council of Canada, through the Community-University Research Alliance (CURA) Program. Its

mission is to foster innovative research, training, and generation of new knowledge in the area of **e-learning** in the field of education, particularly as it relates to opportunities in rural, isolated areas. The focus is primary, elementary and secondary education (K-12), with recognition of the importance of transition years from secondary to post-secondary education. A number of research studies in e-learning funded under the CURA Program are referred to collectively as the Killick Project. Furthermore, these research projects will contribute to the evolution of **e-learning** in the primary, elementary and secondary school system.

On February 21, 2007, the Killick Project for E-Learning Research was officially launched at the Inco Innovation Centre, Memorial University. The administrative arm of this community-university research alliance is located in the G. A. Hickman Building (commonly referred to as the Education Building), Memorial University. In essence, the Killick Project is the anchor for this alliance in e-learning in which many partners will collaborate to develop a better understanding of the potential uses and effectiveness of new and emerging technologies in the K-12 education system.

In June 2001, the National Broadband Task Force stated that the broadband revolution builds on **three** fundamental revolutions that have taken place in communications networks over the last quarter century. Those fundamental revolutions are: the **digital** revolution; the **network** revolution; and the **capacity** revolution. In the primary, elementary and secondary school system (K-12) of Newfoundland and Labrador, the **digital** revolution began with the launch of the Lighthouse Schools Project in September 1990. As a result, all schools in the province were provided with computers and the majority of schools were provided with Local Area Networks during the 1990s. The **network** revolution had its beginning in the Newfoundland and Labrador school system with the launch of the Small Schools Distance Learning Project in September 1988; however, the launch of the Lighthouse Schools Project was the beginning of the Local Area Networks in the school system. In September 1993, the official launch of STEM~Net as a province-wide “digital network” and the official launch of SchoolNet as a national network for schools and libraries is considered to be the beginning the **network** revolution in the Canadian school system. The **capacity** revolution had its beginnings in **urban** schools when STEM~Net in partnership with Cable Atlantic launched the STELLAR Schools Project in the mid-1990s. The STELLAR Schools Project was a high-speed educational networking project using a fibre/co-axial broadband cable network with 4 Mbps Internet connectivity that enabled school networks to transmit video, sound and graphics in a full multimedia networking environment. In the small **rural** schools, the **capacity** revolution had its beginnings when STEM~Net implemented the *DirecPC*

Satellite Project in the 1997-98 school year. As a result of this initiative, the majority of small rural schools were provided with a *DirecPC* satellite dish (N=170) that provided a high-speed down-link from the Internet.

As a result of the Broadband for Rural and Northern Development (BRAND) Pilot Program which was launched by the Minister of Industry on September 5, 2002, the **capacity** revolution continues to evolve in rural and remote communities in Newfoundland and Labrador. In a *Press Release* dated September 15, 2005, the Department of Education announced that Centre for Distance Learning and Innovation was chosen to coordinate and administer a new \$24.9 million agreement among the Government of Canada, the Government of Newfoundland and Labrador and Persona Communications Corporation to provide broadband access to **68** schools and **103** communities in rural and remote regions of the province. Consequently, the Centre for Distance Learning and Innovation is providing leadership in the **capacity** revolution. In fact, the legacy of the Centre for Distance Learning and Innovation will be enabling senior high school students in small rural and remote schools to access courses in an effective “E-Learning Environment” using a full multimedia networked environment.

## References

Andrews, R. L. *Integration and Other Developments in Newfoundland Education, 1915-1949*. St. John's: Harry Cuff Publications Ltd., 1985.

Andrews, R. L. *Integration and Other Developments in Newfoundland Education, 1949 - 1975*. St. John's: Harry Cuff Publications Ltd., 1985.

Boone, W. North Atlantic TeleLearning Associates, Inc. *The Virtual teacher Centre –An External Evaluation Report*. February 2004.

Centre for TeleLearning and Rural Education, Faculty of Education, Memorial University of Newfoundland. Stevens, K. & Boone, W. *The Summative Evaluation of STEM~Net: Educational Networking in Newfoundland and Labrador*. March 1998.

Centre for TeleLearning and Rural Education, Faculty of Education, Memorial University of Newfoundland. Sheppard, B. & Stevens, K. *A Case Study of SchoolNet in Newfoundland and Labrador: Integrating Information and Communications Technology (ICT) into the Teaching and Learning Environment of Primary, Elementary and Secondary Schools through SchoolNet Programs, Projects and Services*. March 1999.

Centre for TeleLearning and Rural Education, Faculty of Education, Memorial University of Newfoundland. *Navigating the North Atlantic Rim: A Strategic Plan*. April 2000.

Centre for TeleLearning and Rural Education, Faculty of Education, Memorial University of Newfoundland. Brown, J., Sheppard, B., & Stevens, K. *The Impact of Information Highway Technology on Post-Secondary Education and Career Choices of Senior High School Graduates in Rural and Remote Communities throughout Newfoundland and Labrador*. October 2000.

Centre for TeleLearning and Rural Education, Faculty of Education, Memorial University of Newfoundland. Brown, J., Sheppard, B., & Stevens, K. ***Effective Schooling in a TeleLearning Environment: Centres of Innovation in Information and Communications Technologies.*** December 2000.

***CHANGE & CHALLENGE: A Strategic Economic Plan for Newfoundland and Labrador.*** St. John's: Government of Newfoundland and Labrador, June 1992.

Crocker, R.K. & Riggs, F.T. ***Improving the Quality of Education: Challenge and Opportunity.*** Final Report of the Task Force on Education, April 25, 1979. St. John's: Government of Newfoundland and Labrador.

Department of Education. ***Report of the Minister's Advisory Committee on Grade 12, 1977-78 School Year.*** St. John's: Government of Newfoundland and Labrador.

Department of Education. ***Report of the Sub-committee on Reorganization,*** August 1979. St. John's: Government of Newfoundland and Labrador.

Department of Education. ***Handbook for Senior High Schools in Newfoundland and Labrador,*** October 1980. St. John's: Government of Newfoundland and Labrador.

Department of Education. ***Program of Studies, 1984-85.*** St. John's: Government of Newfoundland and Labrador.

Department of Education. ***Report of the Small Schools Study Project,*** January 1987. F.T. Riggs, Chairperson. St. John's: Government of Newfoundland and Labrador.

Department of Education, Evaluation and Research Division. ***Education Statistics,*** March 1987. St. John's: Government of Newfoundland and Labrador.

Department of Education, Evaluation and Research Division. ***Education Statistics, 1983-84 to 1996-97 School Years.*** St. John's: Government of Newfoundland and Labrador.

Department of Education. ***Towards an Achieving Society.*** Final Report of the Task Force on Mathematics and Science Education. St. John's: Government of Newfoundland and Labrador, May 1989.

Department of Education, Division of Evaluation and Research. ***Evaluation of the Distance Education Pilot Project – Advanced Mathematics 1201,*** September 1989. St. John's: Government of Newfoundland and Labrador.

Department of Education. Report of the Distance Education Working Group. ***Distance Education: Towards Equality of Educational Opportunity,*** February 1990. St. John's: Government of Newfoundland and Labrador.

Department of Education. Young, D. & Cooper, L. A Background Report for the Royal Commission on Education, ***Distance Education: The Newfoundland and Labrador Project,*** February 1991. St. John's: Government of Newfoundland and Labrador.

Department of Education. ***Report of the Graduation Requirements Committee for the Senior High School.*** St. John's: Government of Newfoundland and Labrador, January 1992.

Department of Education. ***The Senior High School Curriculum: A Decade Later, 1981-82 to 1991-92.*** Report of the Senior High School Curriculum Review Committee. October 1992.

Department of Education. **TECHNOLOGY IN LEARNING ENVIRONMENTS: Enabling Tomorrow's Learners, Today.** St. John's: Government of Newfoundland and Labrador. 1994.

Department of Education. **Directions for Change: A Consultation Paper on the Senior High School Program.** St. John's: Government of Newfoundland and Labrador. 1995.

Department of Education. **The Senior High School Program: New Directions for the 21<sup>st</sup> Century.** St. John's: Government of Newfoundland and Labrador, 1996.

Department of Education. **The Schools Act, 1997.** Section: 77(2) and Section 77(3). St. John's: Government of Newfoundland and Labrador.

Department of Education. **Supporting Learning.** Final Report of the Ministerial Panel on Educational Delivery in the Classroom. St. John's: Government of Newfoundland and Labrador. March 2000.

Department of Education. **Centre for Distance Learning and Innovation – Concept Paper and Phase I Implementation Plan.** June 2000.

Department of Education. **Government Launches Centre for Distance Learning and Innovation.** October 30, 2002.

Department of Education. **Government of Canada and Government of Newfoundland and Labrador partner to fund Broadband Access to Rural and Remote Schools and Communities.** June 20, 2003.

Department of Education. **Agreement brings Broadband Access to Rural and Remote Schools and Communities in Newfoundland and Labrador.** September 15, 2005.

Department of Education. **Senior High School Certification Handbook, School Year 2003-2004.** St. John's: Government of Newfoundland and Labrador. 2003.

Department of Innovation, Trade and Rural Development, Industry Canada, Atlantic Canada Opportunity Agencies. **Setting the Context for a Federal-Provincial Broadband Strategy: The Current State of Broadband Data/Telecommunications Infrastructure in the Province of Newfoundland and Labrador.** February 2005.

Distance Education/Learning Resources Section, Division of Program Development, Department of Education. **The Distance Education Project: Using Technology to Improve Educational Opportunities in Rural Areas,** August 1990. St. John's: Government of Newfoundland and Labrador.

Division of Program Development, Department of Education. **A Partnership Model for Distance Education in Newfoundland and Labrador,** March 1997. St. John's: Government of Newfoundland and Labrador.

Faculty of Education, Memorial University of Newfoundland. **Report of the Review Panel on the Centre for TeleLearning and Rural Education.** May 14, 2002.

Faculty of Education. Memorial University of Newfoundland. **Killick Project for E-Learning Research: A Community-University Research Alliance.** Brochure. February 21, 2007

Industry Canada. **The New National Dream: Networking the Nation for Broadband Access.** Report of the National Broadband Task Force. June 2001.

Industry Canada. ***Stronger Communities for a Stronger Canada: The Promise of Broadband.*** Final Report of the National Selection Committee, March 2004.

***North Atlantic Forum 2000: Opportunity and Action in a Knowledge-driven Economy – New Lessons from the Edge,*** Program Booklet, September 24-27, 2000.

Professional Development Division, Newfoundland and Labrador Teachers' Association. ***The Virtual Teacher Centre – Proposal for the Development of a Province-Wide On-line Professional Development Resource.*** 1999.

**Report of the Royal Commission on Education and Youth**, Volume One, (1967). P.J. Warren, Chairman. St. John's: Government of Newfoundland and Labrador.

**Report of the Royal Commission on Education and Youth**, Volume Two, (1968). P.J. Warren, Chairman. St. John's: Government of Newfoundland and Labrador.

Rowe, F. W. ***Education and Culture in Newfoundland***, Toronto: Ryerson Press, 1976.

Royal Commission of Inquiry into the Delivery of Programs and Services in Primary, Elementary, Secondary Education. (1992). ***Our Children, Our Future.*** St. John's: Government of Newfoundland and Labrador.

***The STEM~Net Proposal: A Proposal to Create a Computer Network for K-12 and College Educators in Newfoundland and Labrador.*** Dr. Jaap Tuinman, Vice-President (Academic), Memorial University of Newfoundland. February, 1993.

***The Atlantic Canada Framework for Essential Graduation Learnings in Schools.*** Newfoundland and Labrador version. Halifax: Atlantic Provinces Education Foundation, 1995.