



# INNOVATION AND EDUCATIONAL CHANGE:

*A Study of the Impact of the SchoolNet GrassRoots Program  
on Members of SchoolNet's Network of Innovative Schools*

STUDY PREPARED FOR INDUSTRY CANADA BY DAVID C. DIBBON, PH.D.  
MEMORIAL UNIVERSITY OF NEWFOUNDLAND

[www.schoolnet.ca/grassroots](http://www.schoolnet.ca/grassroots)  
[www.schoolnet.ca/nis-rei](http://www.schoolnet.ca/nis-rei)

# SCHOOLNET GRASSROOTS

## Partners and Sponsors

SchoolNet GrassRoots welcomes the participation of the following partners and gratefully acknowledges their contributions in matching funds for local projects. Through these partnerships, provinces and territories assume the role of managing and administering SchoolNet GrassRoots in their own jurisdictions. In assuming this role, partners demonstrate a commitment to the relevance of the initiative's goals in their schools.

For further information on provincial/territorial partnerships, send an e-mail to: [gr@schoolnet.ca](mailto:gr@schoolnet.ca)

---

### SchoolNet GrassRoots Partners

#### ALBERTA

Alberta Learning in partnership with the TELUS Learning Connection

#### BRITISH COLUMBIA

Ministry of Education in partnership with Industry Canada, Pacific Region

#### FIRST NATIONS

First Nations Confederacy of Cultural Education Centres in partnership with First Nations across Canada

#### MANITOBA

Education, Training and Youth in partnership with Manitoba Education Research and Learning Information Networks (MERLIN)

#### NEW BRUNSWICK

Department of Education

#### NEWFOUNDLAND AND LABRADOR

Department of Education in partnership with STEM-Net

#### NORTHWEST TERRITORIES

Department of Education, Culture and Employment

#### NOVA SCOTIA

Department of Education

#### NUNAVUT

Department of Education

#### ONTARIO

Ministry of Education in association with the Ontario Public Supervisory Officials' Association (OPSOA) and the Education Network of Ontario (ENO)

#### PRINCE EDWARD ISLAND

Department of Education

#### QUEBEC

Association québécoise des utilisateurs de l'ordinateur au primaire et au secondaire (AQUOPS)

#### SASKATCHEWAN

Saskatchewan Education in partnership with Saskatchewan school divisions

#### YUKON

Department of Education

---

SchoolNet GrassRoots gratefully acknowledges the financial support of its corporate sponsors whose contributions enable the funding of SchoolNet GrassRoots projects. In supporting SchoolNet GrassRoots, sponsors demonstrate a commitment to connecting the classroom learning of Canadian students to the expanding information technology base of our economy.

### Platinum Sponsor



### Gold Sponsors



### Silver Sponsors





# INNOVATION AND EDUCATIONAL CHANGE:

*A Study of the Impact of the SchoolNet GrassRoots Program  
on Members of SchoolNet's Network of Innovative Schools*



STUDY PREPARED FOR INDUSTRY CANADA BY DAVID C. DIBBON, PH.D.  
MEMORIAL UNIVERSITY OF NEWFOUNDLAND • APRIL 17, 2002

[www.schoolnet.ca/grassroots](http://www.schoolnet.ca/grassroots)  
[www.schoolnet.ca/nis-rei](http://www.schoolnet.ca/nis-rei)

---

This publication is also available electronically on the World Wide Web at the following address:  
[www.schoolnet.ca/grassroots](http://www.schoolnet.ca/grassroots)

This publication can be made available in alternative formats upon request. Contact the Information Distribution Centre at the numbers listed below.

For additional copies of this publication, please contact:

Information Distribution Centre  
Communications and Marketing Branch  
Industry Canada  
Room 268D, West Tower  
235 Queen Street  
Ottawa, Ontario K1A 0H5

Tel.: (613) 947-7466

Fax: (613) 954-6436

E-mail: [publications@ic.gc.ca](mailto:publications@ic.gc.ca)

## Acknowledgment

Financial support from Industry Canada to conduct the research on which this report is based is gratefully acknowledged.

The views expressed in this report are not necessarily those of Industry Canada or of the Government of Canada.

© Memorial University of Newfoundland, 2002.

Aussi offert en français sous le titre *L'innovation et l'évolution du système d'éducation : Une étude de l'impact du Programme Rescol à la Source dans les écoles du Réseau des écoles innovatrices de Rescol*

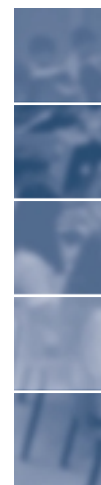
Cat. No. 53742 E

ISBN lu4-11/2002E

0-662-32533-8



20% recycled material



## TABLE OF CONTENTS

TABLE OF CONTENTS .....	5
EXECUTIVE SUMMARY .....	7
INTRODUCTION .....	9
PURPOSE .....	9
BACKGROUND .....	9
Innovation and the Education System .....	9
GrassRoots: The Diffusion of an Innovation .....	12
FINDINGS AND ANALYSIS .....	13
Assessing Innovative Capacity .....	13
Leadership for the Integration of ICT .....	14
How GrassRoots has Influenced Innovation .....	14
SUMMARY .....	16
LIST OF REFERENCES .....	17
APPENDIX 1: CASE STUDIES .....	19
École Ulluriaq School .....	21
James M. Hill Memorial High School .....	24
Joseph H. Kerr School .....	28
Mary Queen of Peace School .....	32
Sackville High School .....	36
Sacred Heart Catholic High School .....	40
Lakeview Elementary .....	44
St. Paul's Intermediate School .....	48
Bishops College .....	52
Crescent Heights High School .....	56
Earl Grey School .....	58
Jack Hulland Elementary School .....	62
Joyce Public School .....	65
Kars Public School .....	67
Roncalli Central High School .....	69
Vernon River Consolidated School .....	71



## EXECUTIVE SUMMARY

**A**t this point in Canada's history, innovation and the adoption of information and communication technologies (ICT) in the nation's schools are essential if we are to meet the challenges posed by our rapidly changing society. Challenges such as globalization of the economy, pressing needs for skilled labour, and technological advances are having an impact on our daily lives as well as the labour market. Meeting these challenges requires educators to be innovative in their thinking about how to improve educational practices. Leading the way in fostering this type of innovation is Industry Canada's GrassRoots Program.

Since its inception in 1996, the GrassRoots Program has been instrumental in facilitating the integration of ICT into the classrooms of Canadian schools. By linking the GrassRoots Program to the school curriculum and providing incentives for teachers to engage students in the process of co-creating electronic curriculum resources for the Internet, it has been influential in transforming classrooms into authentic centres of learning. There is overwhelming evidence supporting the concept that the GrassRoots Program is a powerful connector between ICT and new teaching theories (e.g. constructivism).

This report provides an overview of innovation, a background to some of the challenges associated with large-scale innovation in the Canadian K-12 school system and the findings from a collection of 16 case studies conducted in innovative schools (NIS). Through its case studies, the report demonstrates that when the conditions for innovation are right, for example when a school receives the support of the GrassRoots Program, there is a release of energy from students and teachers that creates a synergy leading to an environment conducive to innovation. When this support is maintained it results in the release of more energy and subsequently the continuation of a cycle of innovation.

An analysis of the data contained in the case studies indicates that the GrassRoots Program is having a positive impact on the diffusion of ICT in the classrooms of schools that are members of the NIS, and it is making a significant contribution to the development of a culture of innovation in the schools. The existence of GrassRoots projects has also increased the capacity for innovation by empowering and enabling the schools and teachers to work on multiple innovations simultaneously. Also, there is sufficient evidence to show that GrassRoots has had a major impact on: teacher professional learning; teacher technology skill development; student technology skill development; student employability skill development; access to teaching resources; leadership opportunities; and school growth and development.

As we make the transition to a knowledge-based society, there is no doubt that it is programs like GrassRoots that provide the necessary support and encouragement required for schools and teachers to be innovative in their use of technology for teaching and learning.





## INTRODUCTION

In 1996 Industry Canada's SchoolNet launched an innovative program to stimulate, among other things, the integration of information and communication technologies (ICT) into the classrooms of the nation. The GrassRoots Program offers funding to schools for the creation of innovative, Internet-based, collaborative and interactive electronic learning projects. To qualify for funding these projects must be relevant to the school curriculum and lead to the creation of Canadian content, designed and implemented by teachers and students, and published on the Internet. They must also foster the acquisition of academic, employability and technology skills in Canadian youth, by integrating information and communication technologies into learning activities, and facilitate increased connectivity and training opportunities.

In 1998 Industry Canada's SchoolNet, in partnership with the Canadian Association of School Administrators (CASA), launched a pilot project, the SchoolNet Network of Innovative Schools (NIS). The objective of this program is to identify innovative schools in the K-12 system that are successfully integrating ICT into the curriculum. The purpose of the Network is, among other things, to establish a "network of schools" that are capable of learning from one another and mentoring other schools in on-line learning communities. To date, over 100 schools have been selected to be part of this Network and they have been provided with a modest financial grant (\$10,000 per year for three years) to facilitate their innovation plans.

## PURPOSE

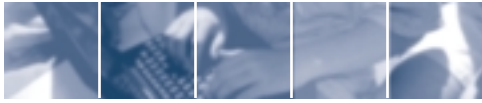
The purpose of this study is to examine how the GrassRoots Program functions in NIS schools and to determine if and how GrassRoots projects stimulate learning and innovation in these schools. Specifically, this study will:

- demonstrate how the GrassRoots Program facilitates the movement of innovative educational practices beyond isolated pockets of excellence to reach a much greater proportion of students and educators;
- examine the change processes in NIS schools that are involved in the GrassRoots program and examine the synergies of these programs in enhancing the learning and the delivery of education in these schools;
- identify how educators in innovative schools use GrassRoots projects to prepare students for learning so that they are capable of acquiring pertinent new skills and knowledge throughout their lifetime;
- study the styles and models of leadership that are being utilized by formal and informal leaders involved in GrassRoots projects in innovative schools;
- identify how the GrassRoots Program has made a significant contribution to innovation in the selected schools;
- demonstrate that the GrassRoots Program has contributed to the schools becoming NIS schools.

## BACKGROUND

### Innovation and the Education System

As a result of a fast-changing global economy, Canadian schools and school districts are facing increasingly turbulent times (Dibbon, 1999; Leithwood, 1999; Rait, 1996; Fullan, 1996; Stoll and Fink, 1996; Leithwood and Aitken, 1995; Prestine, 1994; Leithwood, Janzi, and Steinback, 2000). Changes in our economic environment brought on by globalization, government restructuring, and the rapid growth and expansion in information and communication technologies has made it necessary for Canadian schools to be innovative in their approach to preparing students for success in this new economy (Canadian Federal Government, 1995, 1997 and 2001; Conference Board of Canada, 2001 a; Conference Board of Canada, 2001 b; Laferriere, 2001; and OECD, 1993).



Not since the waning of the 19th century when North American educators had to deal with rapid growth due to immigration and the arrival of the industrial revolution (Campbell, 1987; Bolman and Heller, 1996), has the teaching profession had to cope with such broad-based, societal change. Today, we are in the information age and much of the change and innovation in schools is focused on the successful integration of information and communication technologies into the learning environment. While there have been many examples of individual schools that have been innovative in their use of ICT to enhance teaching and learning, the challenge for system-wide innovation remains.

The standard definition of innovation is “the adoption of an existing idea, practice or object that is perceived as new by an individual or other unit of adoption” (Rogers, 1995). In this definition whether or not an idea is objectively new as measured by the lapse of time since its invention is of little concern. The perceived newness of the idea for the individual, group or organization determines the reaction to it. If the idea seems new to the individual or group then it is an innovation. In the academic literature, there is a clear distinction made between innovation and invention—the adoption of a new idea as opposed to the creation of a new idea. However, in this era of rapid change, the line between the two appears to have blurred, and innovative organizations are both inventing and adopting new practices. As a result, in the real world innovation has come to refer to both (Borins, 2001).

In recent times, innovation has become a topic of great interest to leaders in both the public and private sectors. In the private sector, the rapid development of new technologies has provided opportunities for firms to launch new products, transform their production processes, and do business in new ways. For many industries, innovation is necessary in order to ensure economic competitiveness and sustainability. While public sector organizations (including the education sector) have traditionally been shielded from the pressures of their private sector counterparts, no longer can they claim to be exempt from the pressures of global competitiveness.

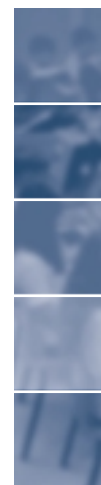
Innovation in education has never been an easy task, primarily because of the conservative nature of our public education system (Levin, 2001). While the past half-century has been marked with numerous attempts to innovate and reform our system, in terms of the impact on teaching and learning, most of these efforts have failed miserably (Fullan, 1995; and Levin, 2001). While many of these initiatives (e.g., *the human relations movement* of the 1940’s and 50’s, *the curriculum reform movement* of the 1960’s, *the implementation studies* in the 1970’s, *the effective schools movement* in the 1980’s, and *the restructuring initiatives* in the 1990’s) delivered short-term solutions, they provided no panacea. From an innovation adoption perspective, by the 1980’s we knew a fair amount about the factors associated with introducing a single innovation but from a societal point of view it was too little too late (Fullan, 1995).

During the 1990’s the pace of change accelerated and it was no longer sufficient to deal with innovations one at a time. The ante had been upped (Fullan, 1995) and as the country prepared to move from a traditional resource-based economy to a newer knowledge-based economy there were numerous calls from both government and business for innovation and change to our education system, to ensure that the next generation of Canadians to graduate from the nation’s schools would be equipped with the skills and knowledge required for success in this new economy. For example, an 1993 OECD Report stated:

---

*Only a well-trained and highly adaptable labour force can provide the capacity to adjust to structural changes and seize new employment opportunities created by technological progress. Achieving this will in many cases entail a re-examination, perhaps radical, of the economic treatment of human resources and education (OECD, 1993, p.9).*

---



The Council of Ministers of Education (CMEC), a creation of the provincial governments that has no formal power over any of the provinces but does play a co-ordinating role with respect to educational policy changes, was also quick to identify the need for changes to our education system. In *Joint Declaration: Future Directions for The Council of Ministers of Education, Canada* (1993) the chairman noted:

---

*We are well aware of the challenges to the education systems posed by our rapidly changing world: globalization of the economy, openness with regard to other cultures, pressing needs for skilled labour, and technological advances that are having an impact on our daily lives as well as the job market. These changes require constant adjustments to our educational practices to ensure high quality, accessibility, mobility, and accountability (September, 1993).*

---

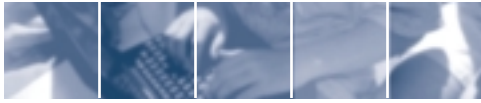
The *Third Annual Innovation Report* by the Conference Board of Canada (2001a) claims that innovation is one of the most important means to improve competitiveness, generate wealth, create jobs, and sustain our high quality of life. As such, creating a fertile environment for innovation is the responsibility of government, business, investors, the financial community, academics and individual Canadians. In *Knowledge Matters: Canada's Innovation Strategy* (2001) the Government of Canada recognizes that there will be an ever-increasing demand for a well educated and skilled workforce in all parts of the economy and in all areas of the country. The report continues by saying: “to accomplish these goals our learning system must be strengthened”. In the Social Studies and Humanities Research Council's (2001) (SSHRC) recent call for proposals on Initiatives for the New Economy (INE Grants) it claims education is a key factor in equipping young Canadians with the knowledge and skills to succeed in a new economy. Clearly, innovating the nation's schools to ensure that students develop the skills required for success in the new economy is of national importance and stakeholders have placed high priority on achieving this goal.

During the 1990's policy makers recognized that the primary function of education in our society had been one of cultural cohesion and stability — aimed at perpetuating cultural values, knowledge, standards, and practices. In essence, for many years the system was more concerned with preserving the status quo than it was with innovation and change. These same policy makers also rediscovered that education could be a powerful and essential instrument of innovation and social change. In fact, one could argue that a central motive behind many current educational reform initiatives is the belief that education has a critical role to play in strengthening the country's capacity to meet the challenges of the future. Education is now so important that governments and industry are major players and education is seen as too important to be left solely to the judgment of educators.



There have been many responses to the call for innovation, but as the experiences of the 70's, 80's and 90's have shown the integration of a new idea into general practice is often very difficult. Even innovations with obvious advantages require a lengthy period, often many years, before they are widely adopted. Although educators have implemented many innovations over the past two decades it is apparent that widespread acceptance is problematic. Many educators claim that taking an innovation to “scale” (Elmore, 1996) or speeding the “diffusion time” (Rogers, 1995) is extremely difficult because of what Fullan (1991) calls “the school's incapacity for change”.

Recognizing this difficulty in taking an innovation to scale, Industry Canada's SchoolNet has developed a number of programs designed to accelerate the uptake of ICT innovation throughout the Canadian K-12



school system. This report examines the impact that the GrassRoots Program has had on innovation in a *Network of Innovative Schools (NIS)* and identifies how the GrassRoots Program has contributed to nurturing a culture of innovation within these schools.

## GrassRoots: The Diffusion of an Innovation

How can we ensure that good educational practices that impact positively on teaching and learning, like the GrassRoots Program, move beyond isolated pockets of excellence to reach a much greater proportion of students and educators? The problem of scale is not a problem of the general resistance or failure of schools to change. In fact, most schools are constantly changing—adopting new curricula, new assessments, new schedules, changing decision-making mechanisms and sundry other modifications (Elmore, 1996; and Fullan, 1995). However, when it comes to changing the *technology of schooling*, replicating this success on a larger scale has proven to be a challenge. *Technology of schooling* refers to the knowledge of the craft of teaching and learning that teachers need to possess so that currently modern thinking about education is manifested in teaching and learning processes.

The GrassRoots Program is aimed at encouraging teachers to move beyond traditional ways of teaching to incorporating more innovative approaches to teaching and learning in their day-to-day work. Generally these innovative approaches are new teaching strategies that acknowledge a general shift in thinking about education, a shift that advocates moving away from:

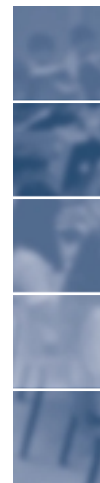
- a teacher-centred classroom to a student-centred classroom,
- a single path of skill acquisition to a multiple path approach,
- a system that relies on single sense stimulation to a system that enables multiple sensory stimulation,
- a single media environment to a multimedia environment,
- isolated work to collaborative work,
- information delivery to information exchange,
- passive listening to an active inquiry based classroom, and
- isolated artificial content to authentic real world experiences.

The GrassRoots Program provides for a powerful connection between ICT and new educational theories about teaching, and learning (e.g., constructivist learning theories, project-based learning, multiple intelligences). Making the connection between these theories and the integration of ICT is essential to the successful introduction of new teaching strategies involving the integration of ICT into the classroom.



To facilitate the diffusion of new ideas about teaching and the use of ICT across the curriculum (GrassRoots Program), it is important to have a strong external standard for innovative teaching practice. In this instance, the external standards (developed externally to the school) can be represented as the criteria that individual teachers use to guide their project development. The external standard is important because it institutionalizes the idea that professionals are responsible for looking outward at challenging conceptions of practice, in addition to looking inward at their values and competencies (Elmore 1996). By developing advanced forms of collaborative and interactive electronic learning projects and making them available to teachers on the Internet, a standard for practice is being set, and the on-line database of projects provides an informal way of communicating norms of good practice to others.

The important thing about these norms is that they inform teachers' ideas about practice and they carry with them a high degree of professional authority.



In the past, and to a large extent today, educators tended to be somewhat naive about how to ensure the large-scale diffusion of an innovative idea. Given what we know about the conditions under which teachers work (Bluestein, 2001; Elmore, 1996; Evans, 1996; and Fullan, 1995) and the generally weak incentives that exist for teachers to embrace ideas that are generated external to the school and classroom, this is not surprising. Just presenting the idea and assuming that because it is a good idea others will adopt it, does not work. Changing teaching practice, even for the most dedicated and committed teachers, can be a slow and arduous process and teachers have to feel there is some compelling reason for them to alter their practice. The GrassRoots Program's linkage to curricular change and financial incentives for teachers to engage students in co-creating electronic curriculum resources for the Internet, and thereby providing a process that allows for the reproduction of classroom successes, has been influential in transforming some classrooms into authentic centres of learning.

An analysis of the data contained in the case studies upon which this report is based, as well as earlier studies completed by Laferriere (2001) and the Conference Board of Canada (2001b), indicates that the GrassRoots Program is having a positive influence on the diffusion of ICT in the classrooms of schools that are members of the NIS and making a significant contribution to the development of a culture of innovation in the schools.

## FINDINGS AND ANALYSIS

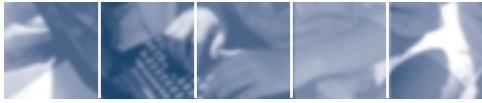
### Assessing Innovative Capacity

There are at least three stages in the adoption of any new technology (Chapman, 1997). The first stage is the reproduction stage—a stage where the primary concern is with using the new technology to do “old things in new ways”. Using PowerPoint to replace overheads is a classic example. Until now, much of the use of technology in schools has been largely concerned with the reproduction of current pedagogical practices. In stage two, the newly available technology leads to new ways of teaching and learning, and supporting the administration of education (Chapman, 1997). Getting to stage two is easier and the innovation is more significant if people (teachers) are able to work collaboratively as members of interactive networks. The creation of a professional network (e.g., NIS) to support the practices of teachers who are in the process of changing or modernizing their teaching practices, has provided leverage for change in the way some teachers approach their work. There is considerable evidence from the case profiles prepared for this study that NIS schools are working comfortably at this level of adoption.

The final application of technology (stage three) is the transformation of education or the movement from traditional types of schools to open model schools (Stevens, 1999; Stevens and Moffatt, in press). The open model school is based on the premise that schools integrate with one another for at least part of a school day. The open model of the school is also grounded in the application of information and communication technologies to teaching and learning and the construction of networked classes for the purpose of facilitating the creation, transfer, utilization and documentation of knowledge. As innovative schools become more innovative, they will be well positioned to lead this transformation.

Changes of this magnitude cannot occur unless there are committed groups of teachers and administrators who see the urgency for this transition and are willing to champion the initiative. Earl and Lee (1998) in their work on school improvement in Manitoba observed a pattern of activity that they have characterized as *a cycle of urgency, energy, agency and more energy*. Something stimulates a group of educators to feel a sense of urgency about changing





the way they do business. The urgency is experienced as a surge of energy that results in either productive action or dysfunctional behaviour. When the conditions are right, for example when a school receives the support of GrassRoots or the NIS, these bursts of energy lead to an upward spiral with an increased sense of agency and productivity. This support, in time, releases more energy and the cycle continues. When support is withdrawn there is a greater chance that the energy will spiral downward resulting in anger and disillusionment, and a previously innovative school risks losing its innovative status. The schools in this study have realized a sense of urgency about making changes to the pedagogical process and the support provided by GrassRoots and NIS has been instrumental in producing an upward spiral of energy with an increased sense of agency.

Finally, there is ample evidence that the GrassRoots Program has contributed to an increased capacity to integrate technology into the teaching and learning environment in these innovative schools. There are many instances where technology integration began with a single teacher and a single GrassRoots Project but with the leadership and coaching provided by GrassRoots teachers and co-ordinators, the GrassRoots Program in these schools has grown and is continuing to grow. For example, in many of these schools teachers are working on more than one project and in many schools up to 50% of the teachers have experience working with GrassRoots. Also, some of the projects are very sophisticated and involve multiple teachers and multiple classes of students, and in some schools all students are involved.

The existence of GrassRoots projects in these innovative schools (NIS) has increased the capacity for innovation by empowering and enabling the schools and teachers to work on multiple innovations simultaneously. As we make the transition to a knowledge-based society, these programs provide the necessary support and encouragement that is required for these schools and teachers to be innovative in their use of technology for teaching and learning.

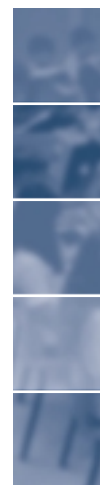
### **Leadership for the Integration of ICT**

The term leadership is impossible to define in narrow terms and readers should understand that leadership cannot be restricted to people who occupy formal positions of authority. This is particularly critical if an organization is to be innovative. While people who occupy positions of authority (i.e., administrators) do play a critical role in the operation of schools, in innovative schools there is evidence that formal leaders empower their teachers to take action, to be creative, and to be innovative. Some, because of personal interest, do provide hands-on leadership to specific activities (e.g., administrators with a background in ICT tend not only to support the vision of others but also to be more involved in the execution of plans than administrators who don't share that background). Others are less involved with the execution of plans and more involved with helping to support the vision of others.

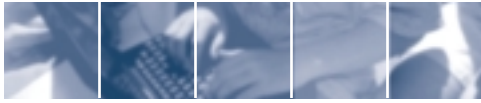
With the exception of the few administrators who are actively involved in teaching, the role of most administrators is to provide support for teachers so that they have the time and resources to do the necessary work that goes into the planning, development and implementation of GrassRoots and other innovative programs. For the most part, the leaders in the integration of ICT are knowledgeable, skilled and committed teachers who are willing to challenge traditional models of teaching.

### **How GrassRoots has Influenced Innovation**

The GrassRoots Program has had a positive impact on the ability of NIS Schools to be innovative in their approach to the use of ICT. Based on the case studies reported in this study the leverage from the GrassRoots Program lies in an increased capacity for the following: teacher professional learning; teacher technology skill development; student technology skill development; student employability skill development; access to teaching resources; leadership opportunities; and school growth and development.



1. **Teacher Professional Learning** - Clearly, the GrassRoots Program is an innovative program that is stimulating professional learning opportunities for educators in innovative schools. The Program provides strong incentive for teachers to re-think their traditional approaches to teaching and their delivery of the curriculum. Participants confirmed that teachers who were engaged in the GrassRoots Program were more inclined to adopt innovative teaching methodologies (e.g., project-based learning) and integrate them into their day-to-day teaching.
2. **Teacher Computer Skill Development** - Not surprisingly, when teachers and students were engaged in GrassRoots Projects they increased their capacity to successfully utilize ICT. All teachers and administrators reported that as a result of their involvement in GrassRoots projects, teachers were more confident in their use of ICT in the classroom. For example, teachers indicated that the GrassRoots experience motivated them to learn website construction skills, how to use digital cameras, how to do multimedia presentations and how to organize students to work in project teams.
3. **Student Computer Skill Development** - Reports indicated that students were enthusiastic about learning and applying ICT to their schoolwork. Teachers spoke convincingly of how GrassRoots projects provided opportunities for students to improve their technical skills (e.g., website construction, e-mail, digital photography, multimedia productions, robotics) through working with other students and teachers on authentic learning problems.
4. **Student Employability Skills Development** - There is sufficient evidence that the skills students are acquiring through the project-based approach to learning being practiced by teachers who participate in GrassRoots projects are the types of skills that are outlined in the *Employability Skills Index 2000+* developed by the Conference Board of Canada (2000). The acquisition of *Employability Skills* is critical if students are to be prepared for success in the 21<sup>st</sup> century economy. In these innovative schools, students and teachers work seamlessly with technology (often in the form of GrassRoots projects) to help develop ICT and other fundamental, collaborative and personal management skills that are critical for success in a modern workplace. This project-based approach towards teaching and learning gets students involved in their own learning and provides opportunities for teachers and students to solve problems as members of collaborative teams. While some schools are able to involve all teachers and students in this process there are still many challenges to meet before this type of teaching and learning is accepted and adopted in all schools. While there is clear evidence that there is a synergy between NIS and GrassRoots, there remain some challenges to accelerating the rate of diffusion of innovative practices within and between schools and districts.
5. **Access to Resources** - Innovative teachers need classrooms that are well equipped with the latest and newest technology. There is almost unanimous consent that the financial awards accompanying selection to the NIS, and the successful completion of GrassRoots projects, provides teachers and students with increased access to new and modern technology. These awards also stimulate professional learning among teachers as in the vast majority of cases, it is the teachers who are involved in these projects who



have control over how to spend the money and many focus on their own professional development. Invariably these teachers invest in new tools for their classroom and when the new technology is made available, they learn how to use it and integrate it into their classroom teaching. In a school system that is for the most part under-funded, these financial awards provide classroom teachers with a degree of autonomy and independence in decision-making not available with other programs.

6. **Leadership Opportunities** - It is also obvious that the GrassRoots Program provides many opportunities for classroom teachers to develop and refine their leadership skills. When not working with their students these teachers are usually coaching or mentoring other teachers on some aspect of how to be an innovative teacher—whether it is integrating ICT into their teaching, completing a GrassRoots application or learning how to use a project-based approach in teaching and learning. These teachers are also seen as curriculum leaders in their schools and in most schools this is recognized by the formal leaders.
7. **School Growth and Development** - The collaborative nature of the GrassRoots Program has influenced the increased level of collaboration between teachers, schools and other community agencies. Participants provided evidence of teacher on-site collaboration on GrassRoots projects, as well as teachers collaborating between sites. There is also evidence that the GrassRoots Program has enhanced the ability of these schools, from a knowledge and process perspective, to work with community partners on the development of ICT projects.

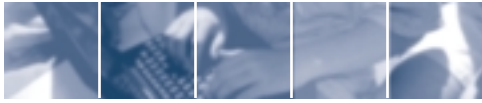
## SUMMARY

This study provides an overview of innovation and a background to some of the challenges associated with large-scale innovation in the Canadian K-12 school system. It provides overwhelming evidence that the GrassRoots Program is, in and of itself, a solid example of a successful innovation and a powerful connector between ICT and new teaching theories. By providing adequate incentives, the GrassRoots Program provides a tremendous stimulus for the creation of a culture of innovation in our schools. The GrassRoots Program has also greatly enhanced the capacity for schools in the *Network of Innovative Schools (NIS)* to integrate ICT into the teaching and learning environment and facilitated the capability to provide innovative programming for students. The report concludes with seven factors that highlight how GrassRoots influenced innovation in schools that were members of the NIS.



## LIST OF REFERENCES

- Bluestein, J. (2001). *Creating Emotionally Safe Schools*. Deerfield Beach: Health Communications Inc.
- Borins, S. (2001). *Leadership and Innovation in the Public Sector*. Paper presented at the Innovation Workshop. February. Ottawa, Ontario.
- Bolman, L., and Heller, R. (1996). *Research on School Leadership*. In S. B. Bacharach and B. Mundell (Eds.), *Images of Schools*. Thousand Oaks, California: Corwin Press Inc.
- Campbell, R. F. (1987). *A History of Thought and Practice In Educational Administration*. New York: Teachers College Press.
- Canadian Federal Government, Ministry of Industry. (1995). *The Challenge of The Information Highway*. Ottawa. Ontario: Ministry of Supply and Services.
- Canadian Federal Government. (2001). *Canada's Innovation Strategy*. [www.innovationstrategy.gc.ca](http://www.innovationstrategy.gc.ca)
- Conference Board of Canada. (2000). *Employability Skills Index 2000+*. Ottawa, Ontario: the Conference Board of Canada.
- Conference Board of Canada. (2001 a). *3rd Annual Innovation Report*. Ottawa, Ontario: Conference Board of Canada.
- Conference Board of Canada. (2001 b). *Canada's SchoolNet GrassRoots Program: Case Studies*. Ottawa, Ontario: Conference Board of Canada.
- Council of Ministers of Education. (1993). *Joint Declaration: Future Directions for the Council of Ministers of Education, Canada*. [www.cmec.ca](http://www.cmec.ca)
- Dibbon, D.C. (1999). *Stages of Growth in the Organizational Learning Capacity of Schools*. Doctoral Dissertation. University of Toronto.
- Earl, L. and Lee, L. (1998). *School Improvement: What Have We Learned from the Manitoba Experience*. Toronto, Ontario: Walter and Duncan Gordon Foundation.
- Elmore, R. (1995). *Getting to Scale With Good Educational Practice*, *Harvard Educational Review*, 66, 1, pp. 1-26.
- Fullan, M., with Steigelbauer, S. (1991). *The New Meaning of Educational Change*. New York: Teachers College Press.
- Fullan, M. (1995). *Change Forces*. London: Falmer Press.
- Laferriere T. (2001). *A Study of GrassRoots Projects: Online Project-based Collaborative Learning*. Ottawa, Ontario: Industry Canada.
- Levin, B. (2001). *Reforming Education: From Origins to Outcomes*. New York: Routledge Falmer.
- Leithwood, K.A. and Aitken, R. (1995). *Making Schools Smarter: A System For Monitoring School and District Progress*. Thousand Oaks, California: Corwin Press Inc.
- Leithwood, K., Janzi, D. and Steinback, R. (2000). *Changing Leadership for Changing Times*. Open University Press. Philadelphia, PA.
- OECD (1993). *Education at a Glance*. Paris: CERI/OECD.
- Owston, R. (2001). *Case Studies of GrassRoots Implementations*. Toronto: York University.
- Prestine N. (1994). *Ninety Degrees from Everywhere: New Understandings of the Principal's Role in a Restructuring Essential School*. In J. Murphy & K. Seashore Louis (Eds.), *Reshaping the Principalsip: Insights from Transformational Reform Efforts*. Thousand Oaks, California: Corwin Press Inc.
- Rait, E. (1996). *Schools as Learning Organizations*. In S.B. Bacharach and B. Mundell (Eds.), *Images of Schools*. Thousand Oaks, California: Corwin Press Inc.
- Rogers, E. (1995). *Diffusion of Innovations*. New York: the Free Press.



Schlechty, P. (1997). *Inventing Better Schools*. San Francisco. Jossey Bass.

Stake, R. (2000). *Case Studies*. In Denzin and Lincoln (Eds) *The Handbook of Qualitative Research*. Thousand Oaks: Sage Publications.

Stevens, K.J. and Moffatt, C. (in press) *From Distance Education to TeleLearning—The Organization of Open Classes at Local, Regional and National Levels*, In, *The Open Classroom - Distance Learning in Schools*, J.Galbraith (Ed), London, Kogan Page.

Stevens, K.J. (1999) *The Role of an Intranet in the Management of Virtual Classes for Advanced Placement Students in Eastern Canada*, In; A. Szucs and A. Wagner (ed) *Shifting Perspectives - The Changing Role and Position of Open and Distance Learning in School Level Education*. European Distance Education Network. Technical University of Budapest, Hungary, 1999, pp: 175-180.

Stoll, L., and Fink, D. (1996). *Changing our Schools*. Philadelphia: Open University Press.





# APPENDIX 1: CASE STUDIES



# École Ulluriaq School

## Overview of the School and the Community

Located in Kangiqsualujuaq, Northern Québec, École Ulluriaq has an enrollment of approximately 250 students. This K-12 school educates the children from kindergarten to Grade two in Inuktituk, but in Grade three, a decision must be made as to whether the remainder of their schooling will be pursued in either French or English.

École Ulluriaq is located in a village of about 750 people, ninety percent of whom are Inuit. The school is the center-piece of the community as it houses the most people in one place at any given time. There is a lot of community involvement with the school. For example, the computer room in the school is open to the public in the evenings, providing an opportunity for community members to have access to technology. Parents who are experts in various fields also come to the school to share their knowledge with the students. Movie and restaurant nights also provide opportunities that promote community involvement with the school.

## Overview of NIS - Involvement and Impact

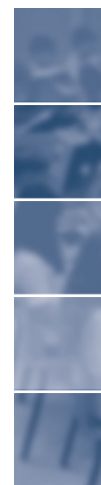
École Ulluriaq is a leader of technology use in education, in its region. Engaging in projects that examine their native people's history, culture and way of life, this school is using technology to strengthen the link with their past. In the community of Kangiqsualujuaq, student dropout rates are a significant concern. Since many of the students who are at risk of dropping out are provided with substantial opportunity to incorporate technology into their schoolwork, improvements in student attendance have been noted. The school understands this correlation and takes steps to ensure that technology is used as a motivator and a reward. This innovative strategy for dealing with a serious problem within the community illustrates that the value of technology in education extends far beyond acquired skills and knowledge and targets real-life needs.

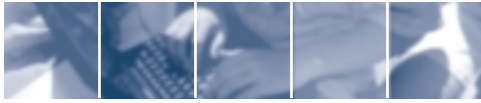
École Ulluriaq was chosen to be a member of the Network of Innovative Schools (NIS) because it stood out as an exemplary school in its region. The students were participating in a variety of different projects and were emerging as leaders in the integration of technology with education. The recognition that has come from being selected as a member of NIS has provided a great deal of encouragement to the school. It has made staff members believe that their efforts are worthwhile and has motivated them to continue to be innovative in the use of technology in education. The networking opportunities that have emerged from being involved with NIS have proven to be very beneficial to the school and have enabled the staff to access experts in a wide variety of fields. This has led to enhanced student learning. In addition, since there is no provincial funding for technology in education in Quebec this year, the \$10,000 received from NIS was crucial to the success of the school's initiatives involving technology in education.

## Overview of GrassRoots - Involvement and Impact

École Ulluriaq has been involved in many different GrassRoots projects. The funds received from GrassRoots projects have been channeled into the technology enhancement program. At times, the GrassRoots funds have been combined with other monies. For example, the school had already been involved with its own fundraising efforts for computer projects ongoing in the school, so GrassRoots funding was used to supplement this initiative. On another occasion, the GrassRoots money was combined with the NIS grant and was put towards the purchase of a set of portable computers that the teachers borrow for use in their classrooms.

At École Ulluriaq, initiatives are planned and implemented by a three-person technology committee. While the committee takes responsibility for the application process, it also seeks out and involves other teachers in the process. The teachers involved with the technology committee get the final say on how the GrassRoots funding should be spent.





GrassRoots projects have had a positive impact on students at École Ulluriaq. All grade levels have been involved in these initiatives, thereby reinforcing that technology can enhance learning opportunities at all ages. The students enjoy using the computer in school and this has made learning more enjoyable. In fact, the technology support person feels that the opportunity for students to use technology in school was the biggest factor in the fight against the high dropout rate in secondary levels. Students who would otherwise decide not to go to school are showing up because of their interest in technology!

Teachers have also benefited from the integration of technology into teaching. GrassRoots initiatives have inspired them to do things that they ordinarily would not have done. The teamwork approach to the use of technology in the school has created a comfort level that makes it safe to try new things and to risk failure.

The school itself has also enjoyed benefits of the GrassRoots Program. Being able to run a project from start to finish without having to consult higher decision-making powers at the school board or district level creates a real sense of ownership for the school. Also, the funding has enabled them to experience more technology than would have been otherwise possible.

## Examples of Innovative Approaches to GrassRoots

École Ulluriaq has participated in many different GrassRoots projects. Some have been on a small-scale while others have involved large numbers of students and teachers. For example, last year the school carried out a Block 2 project involving ten different classes based on the theme of life in Nunavik. The students' work was displayed on a small website. Projects such as this are especially worthwhile because not only do they enhance learning for the students, but they also educate others about the history, culture and way of life that is unique to this group of people. Another innovative project involving a fish egg hatchery will be proposed this year.

École  
Ulluriaq  
School

## Learning and Innovation

People at École Ulluriaq feel that being a part of NIS and GrassRoots programs furthers creative thinking. Innovative projects have pushed the students and staff in a direction that they ordinarily would not have gone. The skills development that has been observed in both students and staff reinforces the value of GrassRoots projects in the school. The amount of collaborative learning taking place between students and teachers has surpassed what could ordinarily be accomplished through traditional teaching and learning strategies.

This collaborative learning has even extended beyond the school. Last year ten teachers from École Ulluriaq and one from another school participated in a project together. The teacher from the other school was very new to technology and did not have the same competence as her counterparts. The staff from École Ulluriaq provided assistance to her so that she could participate in the project. She undoubtedly shared her newly acquired skills with teachers and students at her school as well.

It is important to recognize that, through participation in GrassRoots projects, the students at École Ulluriaq are provided with the opportunity to develop many resourceful skills that will be of great benefit in the work world. In consideration of the Conference Board of Canada's *Employability Skills Index 2000+*, students are developing abilities in all three major skills categories. For example, being challenged and encouraged to think creatively targets the development of *fundamental skills*. Similarly, the development of technology skills also falls into this category. The improvements that have been noted with student attendance indicate that students are developing positive attitudes towards school and learning. As such, this indicates that they are developing *personal management skills*. *Teamwork skills* are also being developed through participation in GrassRoots projects. The very nature of a Block 2 project involving ten different classes demands a tremendous amount of collaboration between students and teachers. Such examples illustrate that students are developing well-rounded skills and abilities and will be better prepared for future challenges in school as well as in the work world.

## Leadership

At École Ulluriaq, most of the leadership for GrassRoots projects has come from the technology specialist. However, it was acknowledged that there is a very strong core of about five teachers who are committed to using technology to enhance education. Through their interest and encouragement, others have also become involved. Personnel from the Board Office have also offered support to the school. As well, personnel in the technology department at the school board have provided innovative ideas and technical assistance that have been quite valuable. They also provided technical help and assistance in translating the bilingual projects.

## Increasing Capacity

École Ulluriaq is firmly committed to using technology in their school to make learning creative and fun. Although there are fewer teachers involved with GrassRoots projects this year, the technology specialist indicated that this could be attributed to the fact that some teachers who were previously involved with the GrassRoots Program have left the school. He hopes that through continued support, they will be able to continue the initiatives that they have already begun.

Concern was expressed that the new GrassRoots application process is overly time-consuming and a little confusing and that the route to take when seeking assistance is not always clear. As a result, many teachers need encouragement to apply and, once they do apply, they need help and support with the application process.

The challenge to increasing capacity is that there are many teachers who do not see technology as an integral component of a modern education. Although the government in Quebec is stressing the importance of technology in education, some teachers have not yet accepted the challenge. This hesitancy has been linked to a lack of training and staff development.

## Summary and Conclusion

École Ulluriaq has been a leader in the use of technology in education, in its region. The initiatives, which the staff has taken to enhance learning, clearly

indicate the value they see in the role of technology in the classroom. Being involved with NIS and GrassRoots has been a key to their success. In this school, the beneficial impact of technology has done more than enhance learning. It has also been credited with keeping kids in school. Such benefits are of enormous significance to a community like Kangiqsualujjuaq. It is hoped that the support and funding that has been received to date will enable the school to continue with their innovative use of technology.

### École Ulluriaq School

Jean Leduc, Principal

P.O. Box 90

Kangiqsualujjuaq, Québec

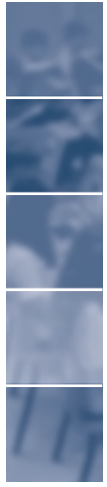
J0M 1N0

819-337-5250

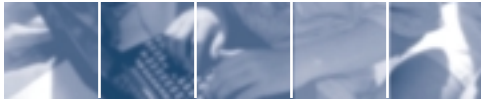
819-337-5354 (fax)

<http://www.kativik.qc.ca/ulluriaq/>

\*The data for this case study was collected during a forty-minute telephone interview with the school technology support specialist. He was recommended by the Principal.



École  
Ulluriaq  
School



# James M. Hill Memorial High School

## Overview of the School and the Community

James M. Hill Memorial High School is a Grades 9-12 school with an enrollment of approximately 800 students. It is located in the city of Miramichi, New Brunswick. Miramichi is an amalgamation of many small, rural communities that are spread extensively throughout the region. This high school is important to many of the 20,000 inhabitants in this area and it is particularly involved with community events and projects.

Considering that a large portion of the Miramichi population calls James M. Hill Memorial High School their alma mater, the sporting events at the school are very well attended. The high school has always been well known provincially for its excellence in sports, however, now it is becoming almost as well known for its innovative use of technology. In addition to providing two community access sites for the use of technology, the school has also been involved in specific initiatives aimed at providing technological assistance to community groups. Other schools have used some of James M. Hill's work in technology and they have even developed some distance education courses that are offered on-line. Many other innovative initiatives using technology are outlined in the next section.

## Overview of NIS - Involvement and Impact

James M. Hill Memorial High has been innovative in that it has attempted to use technological initiatives to strengthen the bond between school and community. For example, in an effort to assist their local baseball team in its bid for hosting a national baseball championship, the students prepared a PowerPoint presentation and created a team website. Such activities provide opportunities for the students to develop valuable skills through participation in a real-life experience that will impact upon the community.

Similarly, setting up a school radio station has provided the students with a wealth of knowledge and skills in the area of radio-broadcasting communications. It has also enabled them to work with experts in this field and serves as another link between school and community. Sharing their advancements in technology with other schools and developing on-line distance education courses are other efforts that illustrate their innovation.

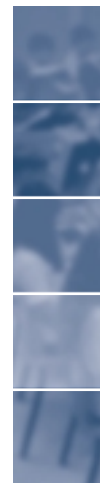
Before becoming a member of the NIS, James M. Hill Memorial High was an early adopter school. By early adopter, they meant that they were always one of the first schools in the district to adopt new technologies. Having experienced success in the implementation of many of the early initiatives motivated the teachers to want more. As a staff, they were used to having extra financial resources to channel into technology, so involvement with NIS would provide a means for them to maintain and improve what they had already begun to develop.

Despite having been turned down after an initial application for Network of Innovative Schools (NIS) status, James M. Hill Memorial High persevered and was successful on their second attempt. They credit this success to the detailed vision for technology use in education that they submitted in their proposal. Focusing on how they would develop and use technology to involve students and teachers from all departments, they put forth plans for innovative ways to impact upon student outcomes. The proposal also recognized that their school had already been doing innovative things that could be taken to new heights with the support of the NIS.

Being a member of the NIS has enabled the school to pursue exciting, new opportunities. The financial contributions that come from being involved with NIS have permitted them to do things that they would otherwise be a financial challenge. The school's Vice-Principal expressed that being part of NIS has given her school "the ability to do new and innovative projects that until now they could only dream about".

One particular project that illustrates this freedom is an initiative that involved linking the students of James M. Hill Memorial High School with another school in Ennis,





Ireland. The “Shamrock Project” involved the collaborative development of a website that won a national award in Ireland. This award attracted a lot of attention and recognition in both places. The members of the Miramichi city council, who had already planned a tour of Ireland, changed their prearranged plans and included Ennis in their tour. The two schools still maintain contact and participate in an annual “cyber pub” each year. One school takes turns playing music for the other school while the counterpart holds a dance. Then the roles are reversed and the other school provides the musical entertainment. It is noteworthy to mention that this initiative evolved from the ideas and efforts of students.

Being a member of NIS and participating in creative projects such as the one described above have generated a great deal of attention towards the school. In fact, community leaders and teachers from around the province have visited the school to observe the sorts of things they have been doing.

## Overview of GrassRoots - Involvement and Impact

A technology committee at James M. Hill Memorial High that is comprised of about twelve teachers meets bi-weekly to explore and discuss new ideas for GrassRoots projects. The philosophy of the committee is to turn individual ideas into school-wide initiatives that benefit as many people as possible. The committee assumes responsibility for putting the proposals together and also discusses how GrassRoots funding should be used within the school. This year, five teachers are working together on a collaborative project.

Although the teachers and students who participate in GrassRoots projects are usually the beneficiaries of the funding, many purchases are of benefit to the whole school. When deciding how to spend the grants, the committee often seeks input from the teachers and they have even conducted surveys, which provide the teachers with an opportunity to submit a technology wish list.

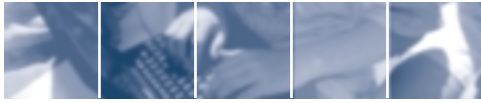
One interesting purchase made through GrassRoots funding is a computerized doll named “Baby Think it

Over”. This doll simulates real life, crying when it needs to be changed, fed or cuddled. The students take turns bringing the doll home on the weekend, during which time they develop an understanding of just how much time and effort goes into looking after a real baby. GrassRoots funding has also been used to purchase new technology equipment. A new computer and a digital camera are two examples of purchases made at the school.

## Examples of Innovative Approaches to GrassRoots

An example of a particularly innovative GrassRoots initiative is the effort that the school has put forth to help out its local baseball team. Having already created an official website for the team, the school is currently helping them work on a proposal to host the national baseball championships. The high school students have prepared a PowerPoint presentation for the team to use in this effort. Innovation is also reflected in the current effort that they are putting forth to develop a FM radio station for the school. With the use of computer equipment that has been donated to the school, they have achieved the initial set-up of their station and have made an application to the CRTC to request a signal with a 5-kilometer radius in the community. In this instance, GrassRoots funding helped to finance a day-trip to Moncton where students and teachers spent most of their time at the CBC radio-broadcasting centre. They were given the opportunity to learn how to use new software and also learned how to improve their existing radio station. This partnership will prove to be extremely beneficial to the school as the CBC has offered to send some of their employees to the school for a day to help them work on their station. During their visit to Moncton, the staff and students also visited another local radio station, C103. The response by this station was very positive and they provided a great deal of media attention to the school by talking about their visit, while on the air. Projects such as these have a positive impact on the students and teachers of James M. Hill Memorial High School as well as the whole community of Miramichi.

James M. Hill  
Memorial  
High School



## Learning and Innovation

Being involved with the GrassRoots Program has allowed teachers to use technology in innovative ways to enhance education and meet curriculum outcomes. Perhaps the most obvious impact upon the staff and students is having the opportunity to work towards becoming technologically literate. There are, however, other benefits that are just as important to the individuals involved. For example, students and teachers have developed a real sense of pride in what they are doing. The positive feedback they have received regarding their accomplishments and hard work has strengthened the value of their efforts, motivating them to go even further. The number of students who spend their own time during lunch-hour and after school working on GrassRoots projects reinforces the notion that they enjoy having the opportunity to incorporate technology into learning.

At James M. Hill Memorial High School, it is apparent that involvement with GrassRoots projects has provided the opportunity for students to develop skills and abilities that are preparing them for the future. Three main skills groups identified in Conference Board of Canada's *Employability Skills Index 2000+* include *fundamental skills*, *personal management skills* and *teamwork skills*. Students are developing skills from all three categories. For example, activities such as creating a website and a PowerPoint presentation for the local baseball team, setting up a radio station for the school

and communicating through electronic media with schools around the world, help to develop technology skills which fall into the *fundamental skills* category. *Personal management skills* are enhanced through the sense of commitment and responsibility that students develop towards their work. The positive attitudes and enthusiasm that they demonstrate towards their learning opportunities also help to build skills from this

category. *Teamwork skills* are also heavily targeted in the GrassRoots projects carried out at this school. Working with peers and teachers, consulting with experts in various fields, and establishing a cooperative website with a school in Ireland have all provided opportunity for the students to engage in collaborative learning.

These examples show that, through their participation in GrassRoots projects, the students at James M. Hill Memorial High School are given the opportunity to develop resourceful skills that will be useful to them now as well as in the future. Their well-rounded skills base will prepare them for the challenges of the work world as well.

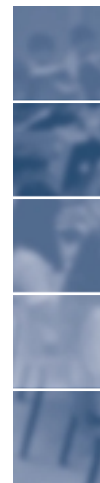
GrassRoots projects have also allowed for the purchase of new equipment that can help students and teachers meet their challenges. This increase in teaching and learning resources enables teachers to use technology to make learning relevant. In addition, courses have become more interesting and fun, thereby enhancing learning. One such example is a course offered in hospitality and tourism. Using a digital camera to take photos of different Atlantic regions, the teacher and students of this course developed a game using Hyper-Studio.

Much of the innovation at James M. Hill Memorial High School has led to the creation of partnerships both within and outside the school. In addition to the partnerships that have already been highlighted in this case study, the school also provides assistance to its district office from time to time. One such example is a project in which the students created a videotape addressing how to interview new teachers. Similarly, another recent GrassRoots project involved the students making a PowerPoint presentation on bus safety at a provincial meeting of school administrators.

Efforts such as those outlined above enable students to participate in worthwhile projects that make positive contributions to community groups. In so doing, the students get to see the real value of technology as it extends into society. Of course these efforts also highlight the creativity that has become ingrained into the school's daily efforts to ensure that curriculum outcomes are covered in innovative and exciting ways.

It is important to acknowledge that the school itself has also benefited from being involved with GrassRoots projects. The positive attention and recognition that have resulted from their efforts has contributed to a very impressive school profile.

James M. Hill  
Memorial  
High School



In order to participate in GrassRoots projects, teachers also require a basic level of technological literacy. Using a word processor, conducting a Web search and making PowerPoint presentations are some of the basic skills that were identified as being important. Being able to develop a vision of how technology can enhance and change education, knowing how to be a facilitator instead of a provider, being able to learn from others, being open-minded and being willing to take risks were highlighted as being quite important to the process as well.

At James M. Hill Memorial High, it is believed that most of the skills essential to being successful in GrassRoots projects can be acquired throughout the process of project completion. Learning as you go is viewed to be an acceptable and valid way to build upon knowledge and skills. Such an approach gives students leadership opportunities, provides options and allows them to be adventurous and creative in their learning. It also supports risk-taking in a supported environment.

## Leadership

Both present and former administrations at James M. Hill Memorial High School took the initial leadership roles in challenging others to become involved in the GrassRoots Program. Now, with the support of the administration, a highly motivated technology committee and the expertise of a few “champions of technology”, each department within the school has been provided with the opportunity to avail of GrassRoots opportunities in a supportive, non-threatening way.

## Increasing Capacity

In order for more teachers and students to become involved with GrassRoots projects, it was suggested that changes should be made to the proposal process. Recognizing that while accountability is important, the proposal process is extremely time-consuming and confusing. One individual also expressed that, although the money provided for the successful completion of GrassRoots projects is greatly appreciated and well used, the amount of funding provided is not that high in consideration of the work that goes into the process.

Another suggestion was that more effort should be made to share the success stories of the school with other staff members. School-wide presentations showing the actual outcomes and rewards of GrassRoots projects would ensure that all staff members were aware of what has been going on in their school. This could stimulate other teachers to become involved with the GrassRoots Program.

## Summary and Conclusion

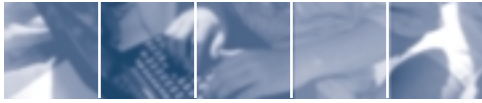
In summary, the teachers and administration at James M. Hill Memorial High School have embraced the opportunities provided to them through the NIS and GrassRoots Programs. They believe that the teaching and learning opportunities stemming from involvement with these initiatives have enabled them to go far beyond the realm of what would ordinarily be possible. Their involvement in these initiatives has afforded them benefits that have far-reaching effects not only for students and teachers but for the community as well. They look forward to continued innovation in the years to come.

### James M. Hill Memorial High School

Claude LaBerge, Principal  
128 Henderson Street  
Miramichi, New Brunswick  
E1N 3W4  
506-778-6088  
506-773-6137 (fax)  
<http://www.schools.brunnet.net/jmh>

\*The data for this case study was collected via telephone interviews with the Vice-Principal and two teachers. They were recommended by the Principal.

James M. Hill  
Memorial  
High School



## Joseph H. Kerr School

### Overview of the School and the Community

Joseph H. Kerr School is a K-12 facility located in Snow Lake, Northern Manitoba. The enrollment at this school has been very inconsistent, with variations ranging from 200 to 500 students. These fluctuations are attributed to the opening and closing of the gold mines in the area. It is felt that the present enrollment of 275 is stable and it is not expected to change in the near future. As Snow Lake is a small town with a population of about 1,400, the school is an important centrepiece in the community.

### Overview of NIS - Involvement and Impact

Joseph H. Kerr School is particularly innovative in the way that it has channeled some of its innovation into the community. One notable GrassRoots initiative was based on the exploration of the water area in the school's old mining town, Snow Lake, Manitoba. The students developed many skills related to the project and also became more familiar with the history and development of their town. This connection made the project relevant to their experiences, thereby rendering it more meaningful and purposeful. Joseph H. Kerr School is also innovative in its approach towards utilizing technology across the curriculum.

One teacher sums up the school's technology initiatives when he states:

---

*I believe our school was selected because of our strengths in educational reform. We do not have a high-speed Internet connection, so we struggle along without the ability to shoot or access things like on-line video, simulations, etc. But what we have done is try to restructure our program and curriculum to allow students to utilize technology in as many ways as possible, in as many different forms as possible over the course of a school day and a year. We are trying to push our kids to see that tech skills are vital, information is important, as are location, access, and comprehension skills.*

---

*As well, we obviously would like our kids to acquire technological competency with various pieces of hardware and software (Web design, spreadsheets, word processors, robotics, image manipulation, etc.).*

---

The Principal of Joseph H. Kerr School is pleased that his school is a member of the Network of Innovative Schools (NIS). He recognizes that being involved with NIS has been a very positive experience for the school as it has enabled his teachers to increase and improve the use of technology in the classroom to make learning more interesting for students.

He also acknowledged the value of the new connections that have been established through being a member of NIS. He explained that the recognition and attention that the school has received is attracting the interest of new recruits to teach in the school. As Snow Lake is situated seven hours travel distance outside Winnipeg, teacher recruitment is an important issue. This spin-off is therefore viewed as being quite significant.

A Grade six teacher believes that being a member of NIS has enabled his school to break past some of the barriers that often restrict innovation in a small community. He highlights the value he sees in the increased communications that his school now has with other innovative schools across the country. He says:

---

*Personally, I believe it means a great deal for our school to be a part of this network. In the first case, it legitimizes that type of work we are doing in our classes. It is often hard to push forward and be innovative in a small town, but now we have the backing of a national agency. Second, it gives us outside connections to the rest of the country with people who face the same trials as we do. Education, can be stifling, it is great to connect with others nation wide... One of the biggest strengths of the network is that it is national and that we have the chance to gather nationally for discussions.*

---

## Overview of GrassRoots - Involvement and Impact

This is Joseph H. Kerr School's second year of participation in GrassRoots projects. Their initial year of participation included three different initiatives. This year, their sights have grown even larger as they have taken on several different projects. Plans for next year's projects are also in the making.

In order to create more awareness about GrassRoots projects among the teachers, posters are displayed in the school and professional development sessions are geared towards generating interest. The administration at Joseph H. Kerr School is very supportive of GrassRoots projects within the school. Recognizing the benefits that the program offers students, they encourage teachers to become involved.

Teachers who participate in the GrassRoots projects are able to determine how the funding should be spent. Some of the past purchases made with GrassRoots funding include a new computer and a palm pilot.

Many benefits of being involved with GrassRoots projects were identified. The students, teachers and the school itself have all reaped some very worthwhile rewards from participation. Both of the staff members who addressed this issue acknowledged that students benefit from being involved with real-life opportunities. For example, projects that were based on their own town afforded them the opportunity to learn more about something that was meaningful in their own lives. Using technology as a means to carry out research on their community made learning more exciting. The benefits of such opportunities are inherent in the words of one teacher who says:

---

*I think these projects have obviously given students the opportunity to conduct "real" research and take part in projects, which are more realistic than they often find with their schoolwork. It promotes the skills they will need to function in the world outside of school. We find the kids are often more interested, intense, and concentrated during these projects because they are interested in the work.*

---

As the students become more competent in their technology skills, they become more aware of their new abilities. This in turn bolsters their confidence and has a positive impact on their self-esteem.

Teachers have also benefited from their participation in GrassRoots projects. The innovative use of technology in the classroom has created a lot of enthusiasm among the participants. Being empowered to abandon traditional ways of teaching in favour of more innovative approaches has stimulated many teachers in this to evaluate their own philosophies and practices in teaching. One individual states:

---

*GrassRoots ICT projects have made us re-examine our practices. What are we doing in this building? What should/could we be doing differently? Why? What do the kids need for the future? How are we going to ensure they are getting what they need?*

---

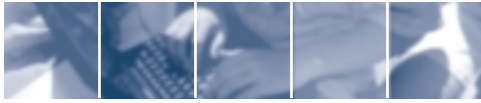
The value of GrassRoots projects is very deep-rooted and is impacting upon the very elements that shape how education is delivered in this school. Any practice that encourages self-reflection and evaluation to this degree is well worth pursuing.

The public attention and recognition that have been directed towards the school have helped to build confidence and instill pride in the teachers and students. This should motivate and encourage further innovation among those who have already been involved as well as those who have not.

## Examples of Innovative Approaches to GrassRoots

As previously mentioned, one interesting GrassRoots initiative carried out by Joseph H. Kerr School was a project based on the exploration of the water area in the old mining town. The students particularly enjoyed this project because it familiarized them with the history of their town and helped them understand how its development evolved. The connection that was established between the students and the community made the project more personal for them.

Joseph H.  
Kerr School



## Learning and Innovation

The Principal believes that participation in GrassRoots projects makes learning more meaningful and interesting. He thinks that the innovation inherent in these projects excites the students, and stimulates their interest and motivation. He also recognizes that participating in GrassRoots projects assists in the development of technological skills. Once acquired, these skills can be recalled as needed. Considering that a large majority of homes in the community have computers, the technology skills that are developed at school are transferred to the home setting and are also relevant for the world of work.

It is evident that the GrassRoots projects carried out at Joseph H. Kerr School have offered enhanced learning opportunities to the participating students. It is also apparent that students are developing many skills and abilities that are preparing them for the future. Three main skills groups identified in Conference Board of Canada's *Employability Skills Index 2000+* include *fundamental skills*, *personal management skills* and *teamwork skills*. Skills from the three principal skill groups are being developed through involvement in GrassRoots projects. For example, developing technology skills through conducting Internet searches and developing keyboarding skills helps to build valuable *fundamental skills*. Conducting research on the local community and preparing a presentation on their findings are other activities that target fundamental skills as well. Being responsible for the completion of a GrassRoots project teaches the students about responsibility and time management. This contributes to the development of *personal management skills*, the second major skills group. *Teamwork skills* are also well developed through GrassRoots projects. Many of the technology skills that are developed over the course of a GrassRoots initiative are the result of collaboration among students with their peers and teachers. This teaches them to share knowledge and work effectively with others. Examples such as these illustrate that the GrassRoots projects at Joseph H. Kerr School provide students with valuable skills and abilities that will continue to be of use as they enter into the world of work.

Joseph H.  
Kerr School

In order for teachers to participate in GrassRoots projects, basic knowledge in areas such as conducting an Internet research, making a PowerPoint presentation and keyboarding were among the technology skills specified as being important. The Principal indicated that most teachers are fairly competent in these skill areas when they are hired. However, there are many in-service opportunities, both in-house and district sponsored, aimed at helping those who wish to improve their skills. As an example, a portion of NIS funding was used to provide every teacher with one paid day to work on the Web page. In addition, there is a technology coordinator on staff at Joseph H. Kerr School who provides assistance to teachers who wish to enhance their technology skills. An interesting perspective is provided by one individual who states:

---

*As GrassRoots demands "more," only teachers with those [ICT] skills can participate. I don't think this is a negative, just a statement of fact. I can see the "digital divide" arising in classrooms where teachers have the skills as opposed to those classrooms where teachers don't have the skills they need. Most teachers acquire their skills in a combination of ways—PD, classroom courses, and playing with the technology they need.*

---

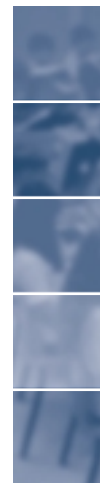
It is imperative that teachers put as much effort as they can into enhancing their technological capabilities and integrating technology into the curriculum. This is generally not a problem, however, as there is plenty of opportunity for these skills to be taught at school.

## Leadership

While the administration at this school has provided support for GrassRoots projects, it is felt that the leadership has largely come from the teachers on staff. A small group of three teachers took the lead in working with the staff, however, a large number of other teachers have also demonstrated a great deal of initiative in making the GrassRoots projects work.

## Increasing Capacity

The momentum that has led to innovation in teaching and learning should continue to grow and have an



impact on the students and teachers of Joseph H. Kerr School. In order to interest more people in participating, it has been suggested that the success stories need to be shared with others in the school, school board and community. Increased awareness of the innovations that have been made through the creative use of technology may generate interest for others to participate. Informing others of the rewards that have been obtained would also be helpful in this endeavour. One individual stated that since the guidelines of the provincial curriculum had to be considered throughout the planning process of a GrassRoots project, it would be helpful to formalize discussions with others on how to be innovative within the framework of the curriculum.

## Summary and Conclusion

A steadily growing participation in the GrassRoots Program at Joseph H. Kerr School is a positive indication of the school's affirmation that technology can be used to enhance learning and meet curriculum outcomes in innovative ways. NIS and GrassRoots funding have permitted this school to build upon the innovation they had already been demonstrating. Through their own efforts, they have made significant progress in using technology to enhance learning and have also come to recognize the impact that the innovative use of technology has on students and teachers.

### **Joseph H. Kerr School**

Scott Powers, Principal

Box 220

Snow Lake, Manitoba

ROB 1M0

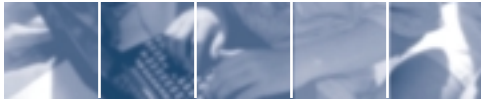
204-358-2281

204-358-2116 (fax)

<http://www.josephkerr.snowlake.mb.ca>

\*The data for this case study was collected through a forty-minute telephone interview with the Principal and one of the teachers at the school completed an electronic questionnaire.

Joseph H.  
Kerr School



# Mary Queen of Peace School

## Overview of the School and the Community

Mary Queen of Peace is a K-6 school with an enrollment of approximately 600 students. Located in the east-end of St. John's, Newfoundland and Labrador, it is one of about five elementary schools situated in a small two-mile radius. Most of the children at Mary Queen of Peace come from homes where education is a high priority. As a result, very strong links have been established between home and the school. An example of this home-school partnership is the provision of training sessions that are provided to parents who would like to develop their own technology skills.

Mary Queen of Peace is well recognized as a leader of technological innovation in education. It has taken a lead role in helping other elementary schools within the local district and province as well as across the country.

## Overview of NIS - Involvement and Impact

Mary Queen of Peace School has long been a leader in technological innovation. For example, this school was posting student work on the Web long before on-line portfolios were mainstream initiatives. With one hundred percent of the students and teachers having been involved in GrassRoots projects, Mary Queen of Peace is exceeding the expected outcomes of their own technology skills continuum. The community link is also very prevalent in this school. With projects ranging from the creation of an identification site for local plants to profiling North America's oldest sporting event, the St. John's Regatta, Mary Queen of Peace has used documentary and artistic media to place great emphasis on integrating community into education. This not only offers students the opportunity to build their skills and knowledge base, but also creates a meaningful link with their own community.

At Mary Queen of Peace, technology is integrated into all grade levels. With the exception of the kindergarten

children, every student at Mary Queen of Peace has his/her own website. This initiative starts in Grade one when the children learn how to set up their website and post artwork and stories. It continues on in each subsequent grade level so that a portfolio of work traces their progress up to Grade six.

The innovation at Mary Queen of Peace is very evident in their GrassRoots projects. With over forty projects being completed to date, all of the students and all of the teachers in this school have been involved with the GrassRoots Program. These projects are particularly valuable because they are curriculum-related and also involve the local community.

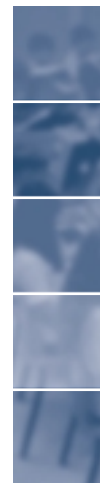
Being a member of the Network of Innovative Schools (NIS) has been a rewarding experience for the staff and students of Mary Queen of Peace. The connections and partnerships that have grown from their involvement have been of tremendous benefit to the school. Connecting with schools in other provinces has provided opportunities for idea sharing that would not otherwise exist. It has also enabled Mary Queen of Peace to serve as a district and provincial leader in technological innovation. The learning-resource teacher at Mary Queen of Peace has also been designated on the NIS website as an elementary school technology expert.

Being a member of NIS has brought with it many practical advantages as well. For example, funding has enabled the school to network the computers in every classroom. It has also been able to maintain and build upon the existing technological resources. This has enabled the administration to use the regular school budget for other areas of need. As such, money does not have to be taken from another high need area to finance the school's technological initiatives.

## Overview of GrassRoots - Involvement and Impact

Mary Queen of Peace has been involved in over forty GrassRoots projects. All of the students have been involved with such initiatives. Students work on their projects before school begins, during recess and lunch and after school. With access to teacher and peer





support, the students assume most of the initiative in completing their projects. Their enthusiasm and willingness to work on their own time demonstrates the high levels of interest that the students have in GrassRoots projects. Learning through GrassRoots projects is an enjoyable experience for these students.

When asked to comment on where the ideas for GrassRoots projects come from, the learning-resource teacher indicated that teachers have begun to look at every project that they do in the classroom as having GrassRoots potential. Because he has more flextime than a regular teacher, he has assumed the responsibility for overseeing the preparation of the proposals. GrassRoots projects are usually done either on a grade level basis or on a larger group scale. One particular project that is currently ongoing involves over two hundred children.

Funding that is received through GrassRoots is channeled back into technology. The learning-resource teacher usually identifies the technology needs within the school. However, teachers are also able to provide input into how they would like the money to be spent. Some past purchases have included computers, digital cameras, video cameras, microphones and computer software. All of these resources provide more opportunities for teachers and students to avail of technology on a daily basis.

## Examples of Innovative Approaches to GrassRoots

Having participated in over forty projects, many different innovative approaches to GrassRoots have been displayed. One interesting example is a project done on wild plants of Newfoundland and Labrador. The goal of this initiative was to create an identification website for plants, trees and shrubs that are native to the province. Using a digital camera, photos were taken of 36 different species at various times in the year. They were identified and posted on-line. To extend the project even further, every class brought in small pieces of plants from outdoors and tried to get them growing. They attempted to identify these plants as well. To help with this ambitious endeavour, the assistance of some staff from

Memorial University's Botanical Gardens and another expert in the field who authored a book on the topic were enlisted. When this project was completed, the responses in the feedback section of the website came from as far away as Sweden! This endeavour was very informative, and tied in many outcomes from across the K-6 curriculum. It provided the students with an opportunity to avail of expertise from within the community and generated interest from around the world.

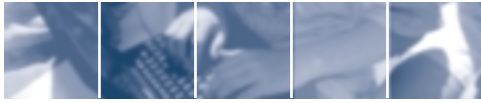
Another interesting GrassRoots project that is currently ongoing involves over two hundred children in the school. The Canadian Broadcasting Corporation held an art contest with a winter theme and received over three thousand entries from children all across the country. The students of Mary Queen of Peace are now helping CBC display the artwork by digitizing the pictures and posting them on-line.

## Learning and Innovation

Students at Mary Queen of Peace benefit from their involvement in GrassRoots projects. A significant increase in the level of technological competence among the students is very apparent. In addition, their interest in using technology is also very high. This is perhaps reinforced by the fact that most children have computer access at home as well. The funding provided by GrassRoots has also helped to create a wealth of resources that enhance student learning. Also, it has enabled the school to network all of its classrooms, further benefiting the students and teachers. At Mary Queen of Peace it is believed that these skills extend beyond GrassRoots to assist students with other work.

GrassRoots projects offer opportunities for students to use and develop other skills as well. The Principal of Mary Queen of Peace identified organizational skills as being inherent to every GrassRoots project. She indicated that for the students, seeing a GrassRoots project unfold from beginning to end taught them about the process as well as the outcome. Research skills and communication skills were among others that were commonly used. She felt that GrassRoots projects engaged students in a variety of

Mary Queen  
of Peace  
School



activities that may not otherwise be available and indicated that GrassRoots projects usually provided a more in-depth study of the topic at hand.

Analysis of the GrassRoots projects carried out at Mary Queen of Peace reveals that technology use in education is enhancing learning opportunities across the curriculum. It is evident that students are developing many skills and abilities that are preparing them for the future. Skills from three principal skill groups in the Conference Board of Canada's *Employability Skills Index 2000+* are being developed through involvement in GrassRoots projects. For example, developing technology skills through creating websites, posting work on-line and conducting Internet searches contributes to the development of *fundamental skills*. Conducting research and preparing their own work for publication also teaches them how to manage and organize information. Being responsible for the completion of a GrassRoots project from beginning to end teaches the students about responsibility and time management. This assists in the development of *personal management skills*, the second major skills group. As well, the students at Mary Queen of Peace do most of the work on GrassRoots projects on their own time. This is a reflection of the enjoyment that they get from using technology to assist learning and helps to develop positive attitudes towards education. These positive attitudes are also incorporated into the second skills group. *Teamwork skills* are also well developed through GrassRoots projects. For example, the on-line project that the students are doing in conjunction with the Canadian Broadcasting Corporation involves over two hundred students. This demands an incredible amount of collaboration from the students and teachers. As such, they learn to work effectively with others. Examples such as these illustrate that the GrassRoots projects at Mary Queen of Peace provide students with valuable skills and abilities that will continue to be of use as they move into intermediate school and can ultimately help to prepare them to enter into the work world as well.

Involvement with the GrassRoots Program has also contributed to a significant improvement in the

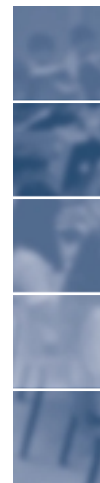
technological competency of teachers. Plenty of professional development and training has been provided to the teachers on this staff. In fact, some of the funding from successfully completed GrassRoots projects has been used to fund some of these in-services. Placing projects on-line has increased awareness among parents and the community that there is innovative teaching occurring at the school.

The school itself has also been positively impacted by its involvement with GrassRoots projects. The formal recognition for their efforts has raised the profile of the school. This has led to a great deal of publicity through a variety of media such as the NIS website and newsletters. Even the Globe and Mail newspaper highlighted Mary Queen of Peace in one of its recent articles. STEM-Net, a local network for educators in the Province, also profiled the school on its site, using them as an example of what young children can do with technology.

In order for students and teachers to participate in GrassRoots projects at Mary Queen of Peace, the presence of certain skills is viewed as advantageous. For students, basic technology skills and research skills were identified as being important. Teachers need to have a reasonable level of technological competence as well. They also need to be willing to take risks, be willing to give generously of their time and be able to see the long-term goals of the projects. This combination of skills and abilities is essential to the success of GrassRoots initiatives.

The Principal explained that the most important key to successful participation in GrassRoots projects is taking the initiative. Everything else, she feels, is learned. She pointed out that GrassRoots projects are not geared just towards the best and brightest students. Instead, they offer something for everybody who is interested in getting involved. The support provided through teacher and peer assistance can compensate for shortcomings that may be evident in any skills areas. She indicated that it is also important to establish a comfortable environment in which students and teachers can learn. They must not be afraid to ask questions and need to feel that there is plenty of support if they should need assistance.

Mary Queen  
of Peace  
School



## Leadership

The learning-resource teacher has been credited with being key to the success of GrassRoots projects at Mary Queen of Peace. Apart from being an expert in technology, he is also a leader and a team player, qualities that are required on a daily basis. He has a vision for the growth of technology in the school, seeing possibilities that others don't. He maximizes the opportunities for integrating technology into the curriculum, thereby enhancing overall student learning. He acknowledges though, the immense support that he has received from his administration, indicating that they do whatever they can to provide assistance with all technological endeavours.

## Increasing Capacity

With one hundred percent of the students and teachers at Mary Queen of Peace participating in GrassRoots projects, it is evident that the tremendous effort being put forth at this school is impacting student learning. Every student uses technology to maximize learning opportunities.

Focusing on a plan for student and teacher development, Mary Queen of Peace has been aggressive in building its capacity to integrate technology into the curriculum. Through fundraising initiatives within their school community and the financial support of NIS and GrassRoots, the staff has secured the monetary resources that have been instrumental in allowing the school to progress. In order for this success to continue, it may be necessary to find other ways to secure financial support.

With plans for more GrassRoots projects already developed, this school plans to continue to be innovative in using technology. The staff is looking to the future, identifying student and teacher needs and putting strategies in place to reach their goals. The Principal expressed that it is imperative to regularly evaluate where the students and staff are in their plan for technology and decide where they want to go. Mary Queen of Peace is taking whatever measures it can to fulfill its vision for the use of technology in education.

## Summary and Conclusion

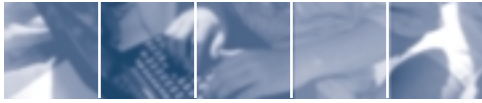
Mary Queen of Peace is an example of a school that has used the GrassRoots Program to help create a student body and teaching force that are technologically literate and skilled. With teachers integrating ICT into their teaching, this school has become known throughout the province, across the country and even around the world as an innovator in using technology in education. The dedication of this staff has manifested itself in increased student learning and an enriched educational program.

### **Mary Queen of Peace School**

Linda Morey, Principal  
137 Torbay Road  
St. John's, Newfoundland  
A1A 2G9  
709-753-7950  
709-758-2706 (fax)  
<http://www.mqp.k12.nf.ca>

\*The data for this case study was collected through a forty-minute telephone interview with the Principal. A second telephone interview lasting thirty minutes was also conducted with the learning-resource teacher.

Mary Queen  
of Peace  
School



## Sackville High School

### Overview of the School and Community

Sackville High School is a suburban school located in Sackville, Nova Scotia. Its student population is drawn predominantly from middle-class and working class families, most of whom find their employment in the nearby city of Halifax. Three junior high schools feed into Sackville High School, creating an enrollment of approximately 1,000. There is one other high school in the same community.

Sackville High School draws in many people from the community. For example, its large gymnasium, equivalent to the size of three regular gymnasiums, is heavily used for a variety of sporting events. There is a great deal of parental and community support for the school's music initiatives and sports teams. In a unique effort to maintain a link with its past, a high school student has created an alumni website that allows former students the opportunity to register their names and keep in touch with others. There are even alumni who return to the school to serve on various committees, which illustrates that Sackville High School does indeed play a significant role in its community.

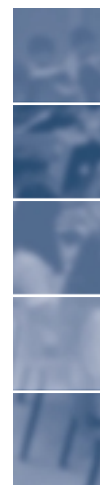
### Overview of NIS - Involvement and Impact

Sackville High School is an innovative school because it has made a great deal of technological advances with minimal resources. Working with a limited budget, the staff at this school embraced the idea of using technology in education and committed themselves to take whatever measures were essential to succeed. The ambition that is evident in some of their GrassRoots projects exemplifies this dedication. For example, last year approximately seven hundred students were involved in a virtual field-trip project. The planning and collaboration that was required to coordinate the efforts of so many students is indicative of the commitment that this school has made to insure that their GrassRoots projects are innovative.

When asked to explain why they felt their school was selected to be a member of the Network of Innovative Schools (NIS), a common theme emerged from all three contacts. Simply stated, this school was “doing a lot with a little”. Despite having access to a very limited supply of technological resources, the staff at Sackville High School was being innovative in ways that even schools with lots of money and resources were not. With a supportive administration and an enthusiastic technology mentor at the helm, these teachers were not afraid of change and were willing to do what they could to enhance student learning through the use of technology.

Being a member of the NIS has been a very positive experience for Sackville High School. This recognition reaffirmed the value of the work that was being done at the school and this resulted in a sense of pride among the students and teachers. This boost in self-esteem motivated them to continue with their innovative approaches towards the integration of technology in the curriculum. Since so many of the initiatives were cross-curricular and involved a large, diverse group of participants, the recognition from NIS helped to validate the effectiveness of a teamwork approach to innovative teaching.

Another benefit to the school is the amount of publicity that has been generated since becoming a member of the NIS. Being selected as one of Canada's leading innovative schools has caused people to take note of the good things that are going on at the school. Through their involvement with the NIS, the staff and students of Sackville High School have been able to make many connections with other innovative schools across Canada. Yet another advantage of being involved with the NIS is the financial award. Sackville High School has used the funding provided by NIS to build upon its pool of technological resources at a time when other financial resources are very limited. It is felt that this funding motivates teachers to take on new challenges, which in turn benefits the students, staff and community.



## Overview of GrassRoots - Involvement and Impact

The teacher-librarian, who was also the technology mentor, is credited with spearheading the school's initial involvement with GrassRoots projects. As she was in the favorable position of working with most of the teachers at the school, she provided great support to them in their efforts to integrate technology into their projects and resource-based units. In addition, she offered after-hours and off-site technology training to the staff.

Approximately eight teachers were involved with the GrassRoots Program during its first year at Sackville High School. As interesting things began to happen, new teachers wanted to get involved. The second year proceeded with another group of eight teachers, three of whom were newcomers to the Program. The emerging trend has been for a few new teachers to replace some "veterans" each year; however, a central core of three teachers has remained involved.

Initially, the teacher-librarian took on the responsibility of preparing the GrassRoots applications. Other staff members who were involved in the projects were able to prepare some of the smaller sub-sections in the applications. However, she oversaw the effort and took on the leadership role for the staff.

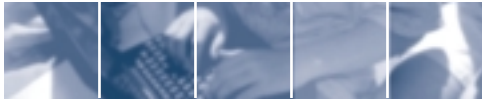
Teachers at Sackville High School who have been involved with GrassRoots projects generally have the opportunity to decide how the funding will be spent within the school. Past purchases made with GrassRoots funding include a LCD unit, Zip drives and Flash software.

This year, the teacher-librarian is on leave and a new teacher has assumed the leadership role. He explained that there is now a core technology/GrassRoots team at Sackville High School who coordinates the applications and provides guidance in allocating the funding received through the program. His role at the school sees him heavily involved in providing technological support to the teachers. His experience in troubleshooting and assisting newcomers to the field of technology serves him well in this capacity.

The three staff members who were interviewed in this study unanimously agreed that the benefits of being involved in GrassRoots projects have been quite substantial. From a student standpoint, the youth at this high school have been gaining valuable experience in using ICT skills. This has developed their competence and confidence in technology. Having their own work posted on-line for others to see has created a great sense of pride and ownership as well. This, in turn, has helped to nurture a positive attitude towards technology and learning. Having the opportunity to do fun and innovative things with technology has also changed the way students view school. Considering that many students do not have access to technology at home, they recognize that, through technology use at school, they have opportunities to do things that they otherwise would not. Working on GrassRoots projects has also helped students learn to be effective time managers and accept responsibility for their work. These skills will continue to be of great use to the students upon graduation from high school.

Teachers have also benefited from participating in the GrassRoots Program. Having the opportunity to work with colleagues in different subject areas helps teachers to see common links across the curriculum. It also places them in a setting in which the sharing of knowledge, skills and expertise allows them to learn from their colleagues in a non-threatening way. This has undoubtedly contributed to the perception that the teachers are more comfortable with using technology and are willing to take risks in new areas. They have learned that you don't need to be a technology expert in order to become involved and contribute to the success of others. It appears that overall, GrassRoots initiatives have led to an increased willingness on the part of teachers to work with technology and to embrace it as a valuable part of teaching and learning.

Through involvement with GrassRoots projects, the school itself has also been affected in a positive way. Similar to the advantages of being a member of NIS, participating in GrassRoots projects provides opportunities for the work of students and teachers to be recognized and valued by the school, parents, school



board, the community at large and others. This serves to enhance the school's profile and creates a sense of overall pride in students and staff.

## Examples of Innovative Approaches to GrassRoots

The GrassRoots projects at Sackville High School tend to be cross-curricular. Last year the theme of virtual field-trips involved approximately seven hundred students. It took an incredible amount of work to coordinate the efforts of eight teachers and hundreds of students. However, through the support of the administrator, in-service time was provided so that teachers on staff could run in-house workshops for their colleagues. The Principal described the GrassRoots initiative as a Program that challenged teachers to "stretch their imaginations". She reported that the teachers who participated in this project gained a tremendous amount of confidence that, in turn, motivated them to continue to work with technology related initiatives.

This year, one of the GrassRoots projects being developed at Sackville High School is an on-line database of student work. Digital portfolios will display a wide genre of student work with submissions including art, writing and music projects. This opportunity is open to all students in the school who are encouraged to create and display their own personal portfolios. Students and staff who need support during this process can take advantage of the expertise of the GrassRoots team that has assumed the leadership role in this project.

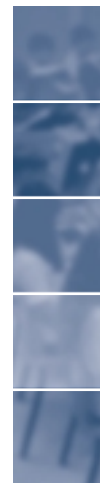
### Learning and Innovation

The three staff members who participated in this study all agreed that GrassRoots projects stimulate learning and innovation. They believe that the integration of technology into the curriculum offers the opportunity for students to be critical and creative thinkers in a supportive setting. One of the most significant impacts that GrassRoots projects seem to have had on learning at Sackville High School is the shift in how classes are taught. Technology has transformed teaching and learning to the point that

teachers and students work collaboratively in the learning process. GrassRoots projects are helping teachers and students to see the utility of using technology to assist in the teaching and learning process. Teachers who have been involved in the GrassRoots projects recognize that technology, when used in creative ways, can be used to make teaching more innovative.

In order to participate in GrassRoots projects at Sackville High School, a basic level of technological competency is required. For example, being able to use e-mail, carry out research on the World Wide Web, prepare a PowerPoint presentation, and use a digital camera, are basic technological skills that provide a solid base upon which to build. More challenging activities such as those that require students and teachers to use animation, create websites and design graphics can be developed over time. With a supply of about 30 computers in the library and others in individual classrooms, it is now normal to see clusters of students working on their technology projects and helping each other during their lunch-hour. This provides opportunity for students to help each other in a relaxed, non-threatening atmosphere.

Through participation in GrassRoots projects, the students at Sackville High School have benefited from enhanced learning opportunities across the curriculum. It is evident they are also developing many skills and abilities that are preparing them for the future. In consideration of the Conference Board of Canada's *Employability Skills Index 2000+*, skills from three principal skill groups are being developed through involvement in GrassRoots projects. For example, developing technology skills through using e-mail, conducting Internet searches, making PowerPoint presentations and using a digital camera contribute to the development of *fundamental skills*. Preparing and posting student work on-line helps students to manage and organize information, thereby contributing to this skills group as well. Being responsible for the completion of a GrassRoots project teaches the students about responsibility and time management. This assists in the development of *personal management skills*, the second major skills group. The student



enjoyment that has been evident throughout the school's involvement with GrassRoots projects illustrates that positive attitudes towards education are also being developed. This contributes to personal management skills as well. *Teamwork skills* are also well developed through GrassRoots projects. For example, the virtual field-trip activity that involved over seven hundred students demanded an incredible amount of collaboration from the students and teachers. As such, they learned to work effectively with others. These examples illustrate that the GrassRoots projects at Sackville High School provide students with valuable skills and abilities that will continue to be of use as they enter into the world of work.

## Leadership

The initial leadership for GrassRoots projects in Sackville High School came from their dynamic teacher-librarian. While providing daily support to the teachers and students of her school, she also motivated teachers to take the initiative to become involved in these projects. She attributes much of the success that she has encountered in the GrassRoots Program to the support that she received from the school's administration. Leadership for GrassRoots initiatives is clearly a team effort at Sackville High School. This year, the members of the school's technology committee share the leadership role but their collaborative efforts encompass personnel from all departments within the school.

The Principal recognizes the value of the GrassRoots Program and she has provided crucial support to teachers and students. For example, by providing in-servicing for the staff and allotting time for the GrassRoots proposal to be properly prepared and, by providing easy access to computers. The district office also provided its support to Sackville High School by providing funding towards technology training for teachers.

## Increasing Capacity

The staff of Sackville High School is optimistic that the school's involvement in GrassRoots projects will continue to grow in the coming years. Staff members feel that as each GrassRoots project is completed, the quality of the work improves and the interest grows.

Before its involvement with NIS and GrassRoots programs, Sackville High School was not recognized as a high-technology institution. It is the enthusiasm and determination among the teachers and students of this school that have played a significant role in ensuring their success with GrassRoots initiatives. It is believed that through continued efforts such as offering technical support, providing encouragement, displaying student work and acknowledging student effort, more people will be interested in participating in GrassRoots projects within the school. It was also suggested that improved staffing ratios would ensure future successes in the GrassRoots initiatives; if teachers were able to work with smaller numbers of students, they would have more time to put into GrassRoots efforts. Although this latter issue is difficult to control, it is worth considering the impact that large class sizes exert upon non-traditional learning initiatives.

## Summary and Conclusion

Being involved with NIS and GrassRoots programs has enabled the staff and students of Sackville High School to be innovative in their approach towards teaching and learning. Increased participation in GrassRoots projects at the school is a very positive reflection of the perceived value of the Program. This is not surprising as the benefits to students, teachers, the school and community at large are numerous and significant. In this school, participation in GrassRoots projects will continue to expand.

### Sackville High School

Judith White, Principal

1 Kingfisher Way

Lower Sackville, Nova Scotia

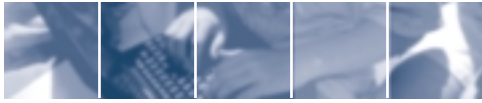
B4C 2Y9

902-864-6700

<http://www.sackville.ednet.ns.ca>

Sackville  
High School

\*The data for this case study was collected through telephone interviews with the Principal, the learning-resource teacher and another classroom teacher. The interviews ranged from 20 minutes to 1 hour in length.



# Sacred Heart Catholic High School

## Overview of the School and Community

Sacred Heart Catholic High School draws its population of approximately 1,400 students from both rural and urban areas in and around Kanata, Ontario. Only two and a half years old, this high school acts as a centrepiece for the 20,000 people in the region. Its gymnasium and theatre are well utilized for a variety of community events and activities and it also serves as a site for the local Computer Access Program (CAP). Members of the community are permitted to use the school's computer labs in the evenings, thereby giving them access to new ICT equipment.

Since Stittsville has been recently incorporated into Canada's capital city, the administration and staff of Sacred Heart Catholic High School recognize the importance of preparing their students to enter into a society in which a high-technology industry is increasingly prevalent. The successful pairing of state-of-the-art ICT equipment with a highly motivated teaching and administrative staff has led to a comfortable and dynamic use of technology within this school.

## Overview of NIS - Involvement and Impact

The Principal noted that the selection of his school to the Network of Innovative Schools (NIS) could be attributed to a combination of factors. He referred to the initial proposal prepared by his school, stating that it reflected a strong willingness to be innovative in the use of technology to enhance learning. He also felt that having a new school with a new team of teachers was beneficial to the process. He described his staff as being keen, eager and open to change and innovation.

Being a member of the NIS has brought many benefits to Sacred Heart School. The Principal indicated that his staff was even more motivated to focus on the role of technology in enhancing education. He also

emphasized the importance of the new partnerships created with other NIS schools, indicating that this has stimulated idea development and sharing. The formal recognition of being a member of NIS has also been very beneficial to the school because it has led to an outpouring of support from the community and the school board.

The teachers on his staff echoed some of the same sentiments and added that the formal recognition of the school's achievements and the opportunity to participate with NIS on a national level has helped to enhance the school's profile. This, in turn, has instilled a sense of pride among the staff and students. Because of their involvement with NIS, the staff feels an increased sense of motivation to take on new projects that they ordinarily would not have been able to do. They also feel it is important to acknowledge that the successful initiatives carried out in their school are largely attributed to the experimental mindset that has been promoted by NIS.

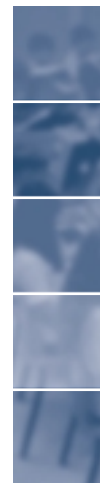
The teachers at Sacred Heart indicated that, through their involvement with NIS, they have established many partnerships with other schools. As such, they have been able to participate in idea-sharing sessions and have also been able to act as leaders for other schools as well. While acknowledging that learning and trying to share one's experiences and knowledge with others can be quite time-consuming, they believe it is important to engage in such practices because "the altruistic goal of teaching is the dissemination of knowledge".

The teachers indicate that they feel a sense of responsibility to "honour their accomplishments". As such, they are committed to maintaining and building on their achievements. Also, they feel a responsibility to share with others how technology can be successfully used within their school and community and how it permeates its way through different lifestyles and employment situations.

## Overview of GrassRoots Involvement and Impact

Sacred Heart Catholic High School is extensively involved with the GrassRoots Program. To date, almost





half of the staff has been involved in the GrassRoots projects. The variety of topics and themes covered in the projects has ranged from technology mentor workshops with kindergarten and Grade 12 students, to profiling local senior citizens through student-created Web pages. Regardless of the subject area, learning is collaborative and curriculum outcomes are being met. All GrassRoots projects are connected to the curriculum and the teachers ensure that students are aware of the goals for each initiative.

The Principal acknowledged that preparing a GrassRoots proposal could be a very difficult process, so to assist new teachers, experienced teachers have in-serviced other staff members. Consultants from the school board have also been asked to work with the staff on this topic. As a result, applications to the GrassRoots Program are usually prepared and submitted by a designated committee within the school. This teamwork approach allows the teachers to use each other's experience and expertise. This team-oriented effort has since evolved and has resulted in the staff of Sacred Heart helping other schools with the application process as well.

Over recent years, Sacred Heart Catholic High School has generated approximately \$20,000 through GrassRoots projects. Teachers are given the opportunity to provide input into how they feel the funds would be best channeled back into the technology component of the school. Citing one example of how funding has been used, the Principal explained that GrassRoots money enabled the staff to purchase wireless network cards for classrooms situated in the portable units of the school. Digital cameras, new software and a plasma screen to display current events around the school are other examples of new equipment obtained through GrassRoots funds. Other funding has been channeled into professional development initiatives to provide the staff with new knowledge and skills in technology.

Being involved with GrassRoots projects has had a positive impact on the students of Sacred Heart School. The opportunity to participate in activities such as preparing PowerPoint presentations, producing educational videos and making websites has provided

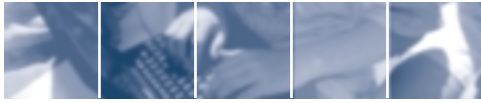
students with a wealth of technological knowledge and skills. In addition, they have been simultaneously learning how to conduct research, develop communication skills and correspond with others through the use of technology.

The GrassRoots projects at Sacred Heart are realistic and permit the students to learn through involvement. By being involved in a project that receives outside funding opportunities, students learn about some of the responsibilities inherent in such an arrangement. The students also benefit from GrassRoots projects because teachers can use technology to customize learning opportunities to suit different learning styles. This results in learning being more relevant and interesting, which makes it more meaningful for the students. The teachers who participated in the study felt that it was also important to recognize that participation in GrassRoots projects provides an opportunity to showcase students' skills and abilities. This builds confidence and motivates students to work to their potential.

Teachers at Sacred Heart School have also availed themselves of many benefits associated with the GrassRoots Program. For example, the teaching and learning resources that are now readily available are steadily increasing. This is important to teachers when planning lessons. Also, as teachers see the impact that GrassRoots initiatives have on learning, they are in turn motivated to develop other initiatives to receive more funding to do even better things. The increasing number of GrassRoots projects at Sacred Heart School confirms this trend.

The teachers who participated in this study indicated that the recognition they have received from outside sources has had a very positive impact on morale within their school. They feel that this recognition "reinforces the merit of what they are doing" and serves as a social and political endorsement for their initiatives. They also agreed that the school itself benefits from GrassRoots initiatives. For example, the technology program is continually enhanced through the addition of new equipment and, as a result of the new technology; there is an increase in the expertise of staff members. In addition, the prestige

Sacred Heart  
Catholic High  
School



and recognition associated with participating in the GrassRoots Program encourages teachers to get involved with other initiatives.

## Examples of Innovative Approaches to GrassRoots

Sacred Heart Catholic High School has participated in many unique and innovative GrassRoots projects. One ongoing theme project, “Generations CanConnect”, offers the opportunity for the whole family to be involved in the education of the student. Through this initiative, Grades seven and eight students, with some assistance from their parents, prepare a project on a senior citizen of their choice. They post their information on a website that is dedicated to profiling this individual. This project allows students to develop important technological skills and enhances their learning opportunities as well.

Another innovative project was done in collaboration with some of Sacred Heart’s feeder schools. In this instance, the Grade six students created a portfolio of their work that could be electronically shifted to the new school and placed in their new portfolio. Such initiatives rely heavily upon the collaboration of students and teachers across all grade levels. Another project that illustrates the cross-curricular value of GrassRoots projects involves posting students’ work on Shakespeare on-line. This project demonstrated that technology skills could be successfully integrated with the Language Arts curriculum. It was also a useful source of information for other students.

An examination of the GrassRoots initiatives that have been developed at Sacred Heart Catholic High School reveals that all grade levels and subject areas benefit from participation in the projects. Technology is being successfully integrated into the curriculum to make learning meaningful and fun.

## Learning and Innovation

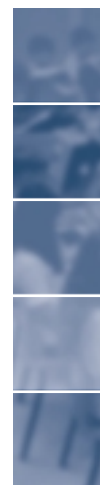
The staff of Sacred Heart Catholic High School believes that the GrassRoots Program stimulates learning and

innovation. Both students and teachers are broadening their knowledge and skill base in a comfortable, supportive environment. GrassRoots projects enable them to participate in learning opportunities that they would not otherwise be able to afford.

To participate in GrassRoots projects, teachers and students need to have competence in certain fundamental skills. For example, technology skills, task management, time management and literacy skills, a willingness to learn and be open to new things were identified as being particularly useful. One of the strengths of the GrassRoots Program is that these skills can be learned and developed while working on projects.

It is important to acknowledge that the development of skills and abilities that occurs through involvement with GrassRoots projects is preparing students for the future. To offer some perspective on the value of these skills, it is helpful to refer to the Conference Board of Canada’s *Employability Skills Index 2000+*. At Sacred Heart Catholic High School, it is evident that GrassRoots projects provide significant opportunity for skill development in each of the three identified skills categories. For example, the enhancement of technology skills through the creation of PowerPoint presentations and student websites, targets the *fundamental skills* category. Working with senior citizens and younger students enhances communication skills, which fall into this category as well. *Personal management skills* are enhanced through the sense of commitment and responsibility that students develop towards their work. The integration of technology across all areas of the curriculum also contributes to this category because it maximizes and enhances learning opportunities. *Teamwork skills* are also heavily targeted in GrassRoots projects. Working with peers, teachers, younger students and members of the community demands that students engage in collaborative approaches to learning. It is evident that, through their participation in GrassRoots projects, the students at Sacred Heart Catholic High School are given the opportunity to develop resourceful skills that will be of great use to them now as well as in the future. Their well-rounded skills base will prepare them for the challenges of the work world.

Sacred Heart  
Catholic High  
School



Skills development is an important issue for teachers. While acknowledging that most new staff members are usually quite comfortable with the daily use of technology at school, measures have been put in place to ensure that each staff member has the opportunity to continue to develop his/her technological expertise. For example, staff members who are able to offer assistance to their colleagues provide lunchtime tutoring sessions. On occasion, outside personnel are also brought in to the school to provide technology inservicing. The general philosophy is that if teachers require assistance, support will be provided.

Regardless of the level of technological competence, any individual with the initiative and determination to become involved in a GrassRoots project can be successful at Sacred Heart High School. The collaborative approach to learning and the encouragement and support provided by many staff members provide the right environment for GrassRoots projects to be successfully completed.

## Leadership

The teachers who participated in this interview feel that their school represents a working model of “inclusive participatory leadership”. This non-traditional approach to leadership is based upon the sharing of skills and expertise among the staff. Both the administrator and teachers of Sacred Heart School agree that the leadership role in the GrassRoots projects is shared. A team effort on the part of teachers, administrators, department heads and if required, personnel from the school district, has brought much success to this school.

The teachers interviewed in this study felt that their Principal deserves much credit for setting a good atmosphere in which GrassRoots projects can flourish. They view his approach to be inclusive, meaning that everyone plays an important leadership role in various parts of the process; the leadership roles shift as the occasion arises. They are happy with this arrangement, stating that it would not be practical for one person to take on the initiative by him/herself.

## Increasing Capacity

It was generally felt that receiving GrassRoots funding is becoming increasingly difficult. Revisions to the application process have reportedly created significant increases in the amount of paperwork that must be done. While acknowledging that the process has to be legitimized, the teachers expressed some concern over an apparent increase in rejections. They feel that this may be intimidating for newcomers and could discourage people from applying. They are also concerned that the selection process may inadvertently be shifting away from those who want to be involved for the sake of innovation, in favour of those who can write the best proposal. They indicated that it would be helpful if assistance could be provided for newcomers on how to do the proposals quickly and effectively.

## Summary and Conclusion

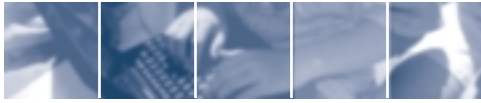
This school has embraced the philosophy of integrating technology into every aspect of the curriculum with the goal of enhancing learning opportunities. The staff and students celebrate the successes that they have encountered through being involved in NIS and GrassRoots programs and they look forward to the prospect of participating in future ventures.

### **Sacred Heart Catholic High School**

John Shaughnessy, Principal  
5870 Abbott Street  
Stittsville, Ontario  
K2S 1X4  
613-831-6643  
613-831-6647 (fax)  
<http://www.occdsb.on.ca/~shh/>

\*The data for this case study was collected through a forty-minute telephone interview with the Principal and a forty-minute teleconference with four classroom teachers.

Sacred Heart  
Catholic High  
School



## Lakeview Elementary

### Overview of the School and the Community

Lakeview Elementary School is a K-4 school with an enrollment of about 380 children. Located in Meadow Lake, Northwest Saskatchewan, the nearest major centre, North Battleford, is one and a half hours away. The two main industries in Meadow Lake, agriculture and forestry, employ a large number of people in the community of 5,000. Several government agencies including Social Services, Agriculture and Environment also contribute to the employment opportunities in this area.

A large portion of the children who attend Lakeview Elementary are of Metis descent. Many of the students come from non-working or low-income families. There are a large number of single-parent families as well. Considering that there is a high degree of special needs at the school, the Department of Education has designated the school as a “Community School”. As such, many programs have been implemented to deal with at-risk children. School lunch and after-school programs, library nights and other activities aimed at getting the families involved with the school and their children’s education are run on a regular basis. This philosophy is supported by the staff, administration, school board and the Director of Education.

### Overview of NIS - Involvement and Impact

Lakeview Elementary School is an innovative school because it has provided the opportunity for its students to meet and exceed community expectations. Many of the GrassRoots projects completed by the students and staff at this school encourage creative and critical thinking, thereby challenging students to perform to their full potential. Projects such as the “Lego Robotics Challenge” that pair elementary children with high school students, stimulate motivation and interest and make learning fun. The staff at Lakeview also values the connection with community and uses this as an extension of student learning. Innovation is also evident

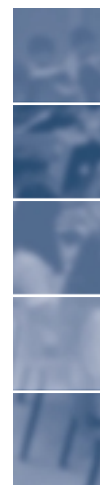
in the way in which GrassRoots projects are used to meet the specific needs of different students. For example, at Lakeview School, GrassRoots projects are used as a tool to challenge bright students and enhance the learning of special-needs children. For some students with behavioural issues, assistive technology has been credited with improving their behaviour.

Lakeview Elementary is an example of a school that bought into technology from the grass-roots level. Most of the teachers on staff did not have a strong background in technology and it was not used on a regular basis. When challenged to embrace technology in education, most of the teachers on staff were very supportive and began to develop their competence in using technology in daily teaching. A number of interesting GrassRoots projects were soon underway in the school. Participating in projects like “Lego-Robotics” and the “QX3 Microscope Challenge”, indicated that significant strides were being made in the use of technology.

The Superintendent of Instruction and Technology had also been somewhat involved in the school’s initiatives. Recognizing the significant progress that the school had made in the area of technology in education, he felt that the school was worthy of being a member of the Network of Innovative Schools (NIS). Lakeview’s successful application reinforced that some innovative things were indeed happening.

Being a member of the Network of Innovative Schools (NIS) has had a positive impact on the school. For example, the formal recognition for the efforts of staff and students and the positive publicity that has resulted from this honour have created a great sense of pride and accomplishment among all involved. As a reinforcement of their accomplishments, the school has posted a NIS membership sign in the entrance. There are also other icons around the school, reminding them that they are an innovative school.

The financial awards that go with being selected as a NIS school have also been a tremendous boost to Lakeview Elementary. The school has used this funding to continue to build on their initiatives to integrate technology into their school education plan. Because



there were many other areas of need within the school that require financial support, the NIS grant enabled the school to support technology while channeling its regular budget into other areas.

## Overview of GrassRoots - Involvement and Impact

Lakeview Elementary School has been involved with GrassRoots projects since they first became available. So far this year, they are participating in two GrassRoots projects and are hoping to secure a third. Being involved with GrassRoots projects is one creative way to carry out the mandate of the Department of Education that has adopted the philosophy that information technology needs to be integrated with daily teaching practices.

The financial award that comes from the successful completion of a GrassRoots project is a significant incentive for teachers to become involved with the program. Through the receipt of such funds, Lakeview has continued to expand its technology resources. The positive impact of increased resources filters its way through the entire school, helping to enhance the education program for all students.

The teacher-librarian spearheads the GrassRoots initiatives in this school. She usually invites others to get involved and with the majority of the staff having participated in GrassRoots projects, a teamwork approach has emerged. Because many teachers need help, the teacher-librarian oversees the application process.

The effects of the GrassRoots Program on the school are far-reaching. While making learning fun, GrassRoots projects provide a hands-on way for teachers to enhance their students' learning and simultaneously meet curriculum outcomes.

Many benefits for being involved in such programs are increasingly evident to students, teachers and parents. For example, the Grade one students are involved in an action research project that involves the exploration of how the school's home reading program affects literacy. Since the GrassRoots funding frees up money in other areas of the school budget, the school has been able to

stretch its own budget a little further. This has provided for the purchase of new books that are a central component of the home-reading program. Another positive effect of the GrassRoots projects is that, similar to the effects of NIS, the students and staff feel proud to be involved. This has kept the interest and motivation to use technology in the classroom at a very high level.

Being involved with GrassRoots projects enhances the learning of all involved, but it is also quite practical in that it provides academic challenges for some of the academically gifted students. Similarly, assistive technology has also been used to enhance the learning of special-needs children.

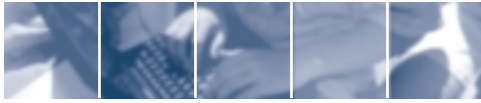
The staff of Lakeview believes that all teachers can and should participate in GrassRoots projects. Technological competency is not an issue in this instance as opportunities are provided for people to learn whatever skills they will need along the way. For example, when the current teacher-librarian first assumed this role in the school, she came from a regular classroom position and knew very little about technology. In time, she acquired all of the technology skills that now make her an expert in the field. The Principal believes that others can also "blossom along the way". Because the teacher-librarian works with the other teachers on staff, the Principal feels that she has created an atmosphere for learning that is very comfortable and non-threatening. The teachers know that it is okay to make mistakes.

The funding received from GrassRoots projects has been channeled back into the development of technology. Past purchases with GrassRoots and NIS money have included library materials, computer hardware, scanners, and digital video equipment.

## Examples of Innovative Approaches to GrassRoots

GrassRoots projects have provided the opportunity for kids to "go beyond" what they could usually do. The "Lego-Robotics" project provided opportunity for Grades four and five students to work with high school counterparts. They had to take on the challenge of

Lakeview  
Elementary



seeing who could make the best drag-car. This project engaged the students in critical and creative thinking and offered an opportunity for younger children to work with older students on a regular basis.

Last year the “Generations CanConnect” project provided an opportunity for young people to learn more about their grandparents or other seniors in their community. Students had to conduct an interview with an older member of their community and publish this person’s profile on the Web. This project provided an opportunity for student learning to extend into the community.

## Learning and Innovation

GrassRoots projects have stimulated a willingness to learn among the students of Lakeview Elementary School. Through the use of technology orientated projects, teachers and students are planning and learning together. This collaborative approach provides children and teachers with varying skill levels an opportunity to participate and learn about the uses of technology in the classroom.

The use of technology has facilitated innovative approaches to teaching and learning at Lakeview Elementary. For example, when students learn that a presentation does not have to be prepared in the traditional way, but can instead involve more interesting media such as Claymation and PowerPoint, then they are being encouraged to think creatively and look for alternative ways of dealing with a task. It was also suggested that technology has had a positive impact on learning because it is allowing students some control over what they are doing. The opportunity to make pertinent choices and decisions is viewed to be essential to the learning process. It was also acknowledged that the amount and type of information available through the Internet and computer software greatly enhanced the traditional print format. While books and magazines are important and useful learning tools, technology can often offer current information as soon as it is needed. Technology, therefore, provides valuable learning resources that can have a significant impact upon learning.

Examination of the GrassRoots projects carried out at Lakeview Elementary reveals that students are benefiting from enhanced learning opportunities through the use of technology in education. It is also evident that students are developing many skills and abilities that are preparing them for the future. In consideration of the Conference Board of Canada’s *Employability Skills Index 2000+*, skills from three principal skill groups are being developed through involvement in GrassRoots projects. For example, developing technology skills through using the Internet to conduct research and learning how to present material in a variety of different ways, (e.g., PowerPoint presentations, Claymation etc.) contributes to the development of *fundamental skills*. Completing a GrassRoots project from beginning to end also teaches the students about responsibility and time management. This assists in the development of *personal management skills*, a second major skills group. *Teamwork skills* are also well developed through GrassRoots projects. For example, the “Lego-Robotics” and “Generations CanConnect” projects required the students to work collaboratively with others. These examples illustrate that the GrassRoots projects at Lakeview Elementary School provide students with valuable skills and abilities that will continue to be of use as they move into intermediate school and can ultimately help to prepare them to enter into the work world.

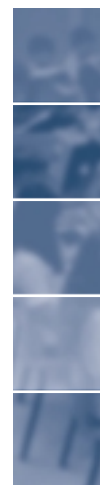
## Leadership

With the support of the staff and administration, it is the teacher-librarian who has been credited with making the GrassRoots and NIS projects work, in this school.

## Increasing Capacity

There has been a high turnover in staff at Lakeview Elementary, so a little more consistency among the key technology teachers at the school would be beneficial. However, the addition of new, enthusiastic staff members has also helped to build motivation and increased the desire to get involved.

In order to ensure the future success of GrassRoots and other technological initiatives at Lakeview Elementary,



current measures that are already in place need to continue. For example, the availability of funding from GrassRoots, NIS and the government and the support that has been coming from the administrative level are essential if Lakeview is to continue to be an innovative leader. Also, considering that the teacher-librarian has played a large role in developing technology in the school, if her position were increased from seventy percent to one hundred percent, the momentum would continue to grow.

## Summary and Conclusions

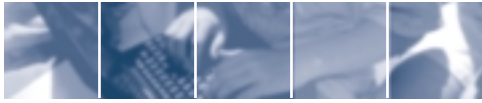
Overall, the technology initiatives at Lakeview Elementary School are perceived as making learning fun and interesting. The recognition directed towards this school has developed a great sense of pride among the staff and students and has made the community take note of the great things that they have been doing. Enthusiasm continues to drive them to be innovative and they hope to continue to be leaders in integrating technology into the curriculum.

### **Lakeview Elementary**

Grant Hansen, Principal  
304 8th Avenue East  
Meadow Lake, Saskatchewan  
S9X 1G9  
306-236-5810  
306-236-3050 (fax)  
<http://www.mlsd.sk.ca>

\*The data for this case study was provided by the school Principal who volunteered to do a thirty-minute interview. In this school the Principal was the only participant.

Lakeview  
Elementary



## St. Paul's Intermediate School

### Overview of the School and the Community

St. Paul's Intermediate School is a Grades 7–9 school that has an enrollment of about 370 students. It is located in the town of Gander, Newfoundland and Labrador. Gander has a population of approximately 8,000 and an international airport that has always been of monumental importance. On September 11, 2001, over 6,500 travelers who were affected by the terrorist attacks in New York landed at the airport in Gander and stayed in the community for several days. The kindness and generosity extended to these stranded individuals speaks volumes about the residents of this Newfoundland town.

St. Paul's Intermediate has long been recognized for its excellence in academics and sports. It has also played an important role in its community for many years. For example, the gymnasium and other school facilities are used to a great extent by the community. St. Paul's also provides some technological services to the town. In particular, they created a website for the town and designed a bilingual tourist brochure. The town returns its appreciation to the school with kind gestures such as the provision of free ice time at the stadium for the school's hockey practices.

### Overview of NIS - Involvement and Impact

St. Paul's Intermediate School is well established in its use of technology in education. Believing that technological literacy is interdisciplinary, this school has taken comprehensive measures to ensure that its students and teachers make extensive use of technology. GrassRoots initiatives have been used to enhance learning in all areas of the curriculum ranging from culinary sensations in the Social Studies program to student novel critiques in Language Arts. St. Paul's is viewed as being particularly innovative because of its high level of student competence in technology.

The work produced by the students of this intermediate school is of a very impressive standard that is attributed to their extensive use of technology in the everyday curriculum.

The Principal of St. Paul's felt that his school was chosen to be a member of the Network of Innovative Schools (NIS) because it had already established itself as being innovative. With a staff that was very skilled in technology, this school was open to new ideas. Being a member of NIS would afford them the opportunity to build on the innovation that they had already demonstrated.

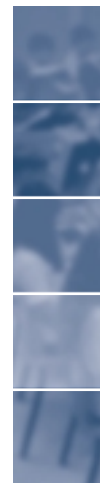
The NIS has had a very positive impact upon St. Paul's school. Being the recipient of \$10,000 a year has provided for the maintenance and expansion of technological resources within the school. Apart from the financial rewards, being a member of NIS has brought with it other advantages. For example, St. Paul's values the opportunity for idea-sharing that comes from participating in NIS conferences, on-line sessions and conference calls. It was acknowledged that the NIS has provided a great deal of support in providing opportunities for its member schools to share ideas.

St. Paul's School is currently one of four schools in Newfoundland and Labrador (and one of 11 in Canada) who are participating in a trial test for a two-way satellite dish for Telestat. Being involved in this trial has provided high-speed access to the Internet and has resulted in an increased capacity to communicate with communities outside the school. The Principal acknowledged that this opportunity came about as a result of the school's involvement with the Network of Innovative Schools (NIS).

### Overview of GrassRoots - Involvement and Impact

St. Paul's Intermediate is extensively involved in the GrassRoots projects. The school regards its participation in the GrassRoots Program as being instrumental to its success. Last year, GrassRoots funding enabled St. Paul's School to move forward with many innovative projects. The NIS and GrassRoots





funding have been the major sources of revenue used to support the technological endeavours carried out in the school.

GrassRoots projects are becoming increasingly widespread throughout the school. With more than half of the teachers on staff having some sort of involvement with GrassRoots, many innovative approaches to teaching and learning through the use of technology have emerged. Ideas for new projects are often discussed during staff and committee meetings. This sharing of ideas is regarded as helpful in generating plans for future projects. While the Principal helps to oversee GrassRoots projects in the school, the main responsibility rests with a small team of teachers.

GrassRoots projects at St. Paul's have been involved both individual and group efforts. The teachers who are directly involved with a particular project take the initiative to learn how to prepare and submit their own proposals. The project teachers also decide how the funding will be utilized. Suggestions are sometimes offered by the administration, but it is the participating teachers who make the final decisions. Some past purchases have included a television, a VCR, a digital camera and a digital scanner. One of the technology goals of St. Paul's is to have a 27-inch television, VCR and scan adapter in every classroom so that everyone can avail of new video technology.

Students who get involved in GrassRoots projects generally improve their technology skills. As they learn how to create PowerPoint presentations, design Web pages and use animation, they become more technologically literate. The benefits to teachers are very similar to those of the students. The more experience teachers have with using technology, the better skilled they become. This, in turn, assists them in finding innovative ways to use technology in the classroom. The money that comes from the successful completion of GrassRoots projects is a nice incentive that motivates teachers to use a project-based approach towards student learning.

## Examples of Innovative Approaches to GrassRoots

The staff and students of St. Paul's Intermediate School have participated in many different GrassRoots projects. Each initiative reflects its own unique innovations. With past projects including themes such as bats, aircraft, novels, and a Quebec exchange trip, it is apparent that the work emerging from this school has been innovative.

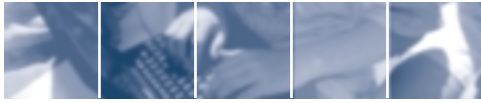
Under the guidance of one of the teachers, all of the Grade nine students will be involved in a technology project that will see a copy of the 2002 version of the St. Paul's Yearbook posted on-line. In another initiative called "Where Are They Now?" an effort to keep track of the school's alumni, students are attempting to track former students and gather information about them, as well. Another upcoming project involves the creation of a virtual tour of St. Paul's School and should help to keep present and former students in touch with the school community.

Another GrassRoots project provides an opportunity for the students of St. Paul's to voice their opinions and make connections with students in other provinces. "The Student Reaction Forum" lets students respond to various issues of relevance that are posted on-line. Students in Prince Edward Island and Ontario are also involved with this project. With the required technology already in place, they are hoping to do some video-conferencing as well.

Demonstrating the role that GrassRoots can play in the Language Arts program, "Inside the Intermediate Novel" will enhance novel studies at the school. A group of students will read the recommended novels for Grades seven, eight and nine and will then write critiques, plot summaries, and author biographies. These reviews will be posted on-line for the benefit of both teachers and students. Under the direction of three teachers, approximately 120 Grade nine students will be involved in this project.

Yet another GrassRoots project will take participating Social Studies students on an exciting exploration of Newfoundland culture and cuisine. "Dining At Its Finest:

St. Paul's  
Intermediate  
School



The Newfoundland Touch” will cover gastronomical delights of Newfoundland, ranging from “jiggs dinner” to Purity Syrup.

## Learning and Innovation

Participation in GrassRoots projects has had a positive impact on learning and innovation at St. Paul’s School. One of the teachers captured the essence of this phenomenon by stating:

---

*The GrassRoots Program provides another avenue whereby students can express themselves, outside the pencil-paper or textbook format. We are often amazed at the creativity expressed by students. Some students have a certain “knack” for technology and are able to excel in an area of their interest. I have learned a lot from some of my students as a result of our projects.*

---

At St. Paul’s Intermediate, in order to participate in GrassRoots projects, a fundamental level of technological competence is an asset. A plan for the development of technological literacy is already in place. The staff has created its own technology courses and every student at the school must complete a course in technological education. Teachers at St. Paul’s are also provided with opportunities to develop their technological competence. Training is offered for basic programs such as Front Page, HTML and PowerPoint as well how to use the Internet.

Through participation in GrassRoots projects, students at St. Paul’s Intermediate School have benefited from enhanced learning opportunities across the curriculum. It is apparent that they are also developing many skills and abilities that are preparing them for the future. In consideration of the Conference Board of Canada’s *Employability Skills Index 2000+*, skills from the three principal skill groups are being developed through involvement in GrassRoots projects. For example, developing technology skills through video-conferencing, posting work on-line and participating in an on-line discussion forum helps to build valuable *fundamental skills*. Writing personal responses to novels and searching for information about former students develops important

writing and research skills that also fall into the same category. Being responsible for the completion of a GrassRoots project teaches the students about responsibility and time management. This contributes to the development of *personal management skills*, the second major skills group. *Teamwork skills* are also well developed through GrassRoots projects. For example, activities such as participating in a student reaction forum with students in two other provinces and working as a team to create an on-line yearbook enable students to collaborate their efforts and learn to work effectively with others. Such examples illustrate that the GrassRoots projects at St. Paul’s Intermediate School provide students with valuable skills and abilities that will continue to be of use as they enter into the work world.

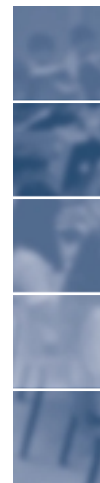
## Leadership

The administration at St. Paul’s Intermediate School is recognized as being very supportive of GrassRoots endeavours. However, the main leadership role for the projects is provided by a group of three technology teachers who provide support for the staff and helps to oversee the projects.

## Increasing Capacity

The staff at St. Paul’s Intermediate acknowledges the significant role that NIS and the GrassRoots Program have played in enabling them to be leaders in technological innovation. Recognizing that it takes a significant amount of money to be innovators in technology, there is a concern that once the NIS funding expires, it may be difficult to maintain the technological resources and initiatives that are so important to their progress.

When asked to comment on strategies that may help to increase the number of teachers and students who participate in GrassRoots projects, a couple of practical suggestions were put forth. First, if the GrassRoots funding were higher, this would in all likelihood entice more people to become involved. Secondly, schools need to be provided with time to share their success stories and work together on developing new ideas. Making others aware of the innovations in teaching and



learning that have been happening throughout the school would undoubtedly motivate others to become involved. It was suggested that perhaps GrassRoots could play a role in helping to make this happen. For example, the provision of extra funding could help schools to organize relevant in-service training sessions.

## Summary and Conclusion

St. Paul's Intermediate School has benefited enormously from its involvement with NIS and the GrassRoots Program. The significant role that technology plays in teaching and learning in this facility has enabled it to become a leader in education, setting a standard for others to follow. The funding provided by NIS and GrassRoots has played a monumental role in helping this school reach some of its dreams and will hopefully set the stage for them to continue to be innovative.

### **St. Paul's Intermediate School**

Dr. Terry Andrews, Principal

5 Gander Bay Rd.

Gander, Newfoundland

A1V 1W1

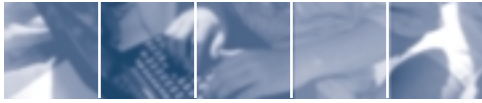
709-256-8404

709-256-8793 (fax)

<http://www.k12.nf.ca/sptech/>

\*The data for this case study was collected during a forty-minute telephone interview with the Principal. One other teacher also participated in the study by submitting answers to the questions in written format.

St. Paul's  
Intermediate  
School



## Bishops College

### Overview of the School and the Community

Bishops College, which was opened in 1959, is an urban high school with French immersion and English stream programs in St. John's, NF, Canada (a city with about 130,000 population in its metro area). It draws its students from a largely residential part of the city surrounded by small malls and recreational facilities. It offers Grades 10 to 12 to a total student population of about 750 and has a teaching staff of 43.

In the past decade, Bishops College has developed a reputation for educational innovation, especially in the area of integrating computer technology across the curriculum. There is a progressive, award-winning staff that actively pursues partnerships with the business community.

### Overview of NIS - Involvement and Impact

In the Principal's view, the school was given Network of Innovative Schools (NIS) designation because of extensive involvement in the integration of ICT throughout the curriculum. When the NIS network was launched, Bishops College had been using ICT for nearly a decade and had already completed many of the goals that the NIS had established for schools, including a school website, electronic sharing of information between teachers and students and mentoring other schools. A visit to the Bishops College website will show dozens of GrassRoots projects as well as a special link to innovations categorized according to departments. These innovations range from "paperless" courses offered by the English Department to a high end interactive Web page (created through partnering among the Science Department, Department of Fisheries and Oceans (DFO) and the Marine Institute of Newfoundland and Labrador) and employing animations and Javascripting.

The NIS has had a positive impact in that NIS funding has provided for the acquisition of hardware and

software. (There are over 200 computers in the school.) The new status of the school has motivated students and teachers to become even more involved and has promoted increased access to computer technology. The end result is that teacher/learner situations are presenting new and more challenging circumstances as ICT becomes more and more integrated across the curriculum. In the Principal's words: "The bar has been raised."

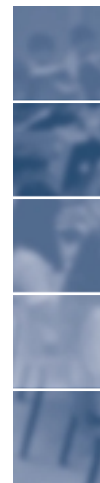
For teachers, the NIS designation has provided an opportunity for the active exchange of ideas with other schools in the country and has provided access to national conferences and on-line forums. Since many other schools are enhancing their own ICT facilities, the mentoring role of the school is not as pronounced as it was in earlier years. Nevertheless, there is a concerted effort to maintain a special ICT connection with feeder schools. One example of this is an on-line editing project in which the creative writing students in the high school are mentoring student writers in the lower grades. One of the interviewees who is most involved in NIS matters had positive comments that were tempered somewhat when the students were considered:

---

*As a teacher who has had the good fortune to mix with teachers from other schools and subjects, I have learned a great deal from my interactions. This is of course passed on to the students. NIS only affects students indirectly.*

---

The same interviewee was critical of the number of teachers as compared to the number of administrators who attended NIS conferences. It was his view that not many teachers receive the direct benefit of attending the NIS conference, but each year the conference is "packed with administrators". He was of the opinion that teachers who are innovative and are on the front lines should attend the conferences and then a network of educators would develop, not a network of administrators. In that regard he suggested that a greater portion of NIS funds should be spent to support of get innovative teachers so they share their ideas and experiences.



## Overview of GrassRoots - Involvement and Impact

In the Principal's estimation, approximately 50% of the staff of 43 are (or have been) involved in GrassRoots projects since the program's inception in 1996. Interested teachers consult with their department heads and the technology department head, who is also the GrassRoots coordinator. When all parties agree on the nature of the project, the department heads then seek the approval of the Principal. Any incoming funds as a result of a successful application are placed in a GrassRoots account to be used by the successful teacher. The money is usually spent on a technology resource identified by the teacher and the department head and approved by the Principal. A comment from the lead GrassRoots teacher suggests that sometimes the funds are shared: "I have been able to use GrassRoots funds to help other teachers buy supplies and pay for materials that save money in other budgets."

It was the Principal's view that this school had successfully completed many GrassRoots projects and as a result is among the top in Canada as far as the receipt of GrassRoots funding is concerned. In his opinion, the teachers are very supportive of the GrassRoots initiative. He felt that when it came to the use of technology, the school's success in the GrassRoots Program was a motivating factor for both teachers and students. The leading GrassRoots teacher reported that lessons based on a GrassRoots project are those that will be remembered by the students. All students will remember something they build as opposed to something they are told about. In his opinion, this is the key-making the students do the building so that they acquire Internet, word processing and Web page construction experience. In so doing they create on-line resources while at the same time collaborating with other students.

## Examples of Innovative Approaches to GrassRoots

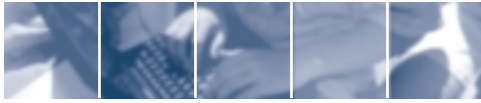
Projects that involve the most collaboration are given the top priority. Over the years many projects have received local and national recognition and several of the projects have been the focus of Prime Minister's Award nominations. The Bishops College Web page provides a link to the GrassRoots of the Month Award winning project, "The Intertidal Zone Field Trip", an attractive, interactive, and very educational project that allows the student to pay a virtual visit to the seashore.

A GrassRoots teacher who has his students do five or six projects per year drew attention to an on-going project called "Wild St. John's"—a project that challenges students to look for a natural area that exists within the city. Then they must take a biological look at the site, examine it in detail and publish report of their findings on a Web page.

## Learning and Innovation

In this school, the use of ICT in the curriculum is transparent in that it permeates all subject areas and virtually all of the students' academic activities. The GrassRoots Program encourages teachers and students to undertake interesting projects, which enhance and expand upon the basic curriculum outcomes. High school students find projects involving technology novel and intrinsically more motivating than traditional library research projects. This is most likely because the nature of project-based learning involves ICT. This is especially so if the student has a role in identifying the problem to be investigated, and, subsequently, has access to the ICT tools to carry out the investigation.

To maintain optimum use of the resources that are available, the school has developed and maintains an up-to-date *Technical Skills Inventory*. This is a checklist of skills ranging from the simple to the more complex that provides a guideline to the skills that teachers and students need to know before they tackle



specific projects. Examples of skills from the list are given below:

- learning basic computer /operating system skills
- word processing
- using a spreadsheet
- creating a database
- presenting information with Presentation software
- creating simple computer graphics
- converting graphics to Web-ready format
- storyboarding/designing a series of Web pages
- writing pages with HTML

In this high school the GrassRoots Program is enhancing student skills in at least two of the three main sectors of the *Employability Skills Index 2000+* published by the Conference Board of Canada (2000). For example, the skills of word processing, presenting information with Presentation software, creating simple computer graphics, using a spreadsheet and creating a database fall under the category of *Fundamental Skills* (the *communication* and *information management skills*).

The GrassRoots coordinator (the head of the Technology Department) in this school identified other skills that can best be categorized under the *Teamwork Skills* section, including the skills involved in organizing groups, dividing labour and collaborating over the Internet. Other skills directly associated with collaboration in *projects and other tasks* in this school include converting graphics to Web page format, storyboarding/designing a Web page series, writing pages with HTML and learning basic computer operating systems.

The GrassRoots coordinator feels that the most important skills are the “soft” skills, the personal and teamwork skills identified in the Conference Board of Canada’s *Employability Skills Index 2000+*.

## Leadership

While GrassRoots projects are encouraged and supported by the administration, the real leadership has originated with a number of teachers on staff. One of the science teachers has shown tremendous leadership by leading dozens of projects that have involved

students and teachers from other schools. His success has enabled him to develop what is looked on by many of his colleagues as a *model electronic classroom*. The main features of the classroom include:

- 3 networked work stations connected to the Internet
- a smart touch board, LCD projector, and lap top, all networked
- a video microscope
- a digital camera
- a scanner and a printer
- a CD burner
- a Zip drive
- a movie series-28 videos on CD.
- tables instead of traditional desks

## Increasing Capacity

The program is highly utilized by teachers in this school but they felt that larger grants would provide a greater incentive. Currently, a teacher has to secure multiple projects in order to get enough GrassRoots funding to purchase a single computer for his/her classroom. The coordinator also mentioned that the proposal system has become more difficult, discouraging teachers from applying. Specifically, he says the save and return Web page is “great when it works”, but there have been some technical problems. The most involved GrassRoots teacher was even more critical:

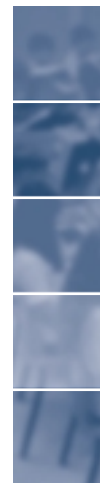
---

*The program has become a closed shop in my opinion. The application process is painful...if you look at the list of accepted projects, you will see lots of old names - not many new names. Things need to be made easier so new teachers can get in the game...I think more consultation with teachers is needed, to improve the program.*

---

## Summary and Conclusion

This school was a pioneer in ICT endeavours in the years prior to the initiation of the NIS Program. The advantages of being an NIS school are at least two-fold: on the one hand students and teachers can collaborate with their peers across Canada and, on the other hand, the extra funding permits even more involvement in ICT endeavours. The strong



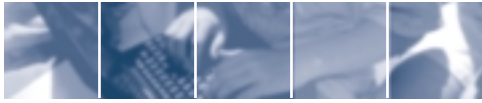
leadership in the school (attributed greatly to department heads and one or two other heavily involved teachers) has resulted in a large portion of the staff being involved in GrassRoots projects and a sizeable number of the staff being recognized provincially and nationally through various awards.

**Bishops College**

Ed Arnott, Principal  
Pennywell Road  
St. John's, Newfoundland  
A1C 2L6  
709-579-4100  
709-579-4109 (fax)  
[earnott@bishops.ntc.nf.ca](mailto:earnott@bishops.ntc.nf.ca)  
<http://www.bishops.ntc.nf.ca/>

\*The information included in this case study was collected during a one hour interview with the Principal and on-line communications with the Head of the Technology Department the lead GrassRoots teacher who has done more than 20 projects over the past couple of years.

Bishops  
College



## Crescent Heights High School

### Overview of the School and the Community

Crescent Heights High School has 1,600 students who are bussed from North East Calgary. The majority are ethnic minorities from working class families. The school is very old and established and very much connected to the history of Calgary. For example, William Aberhart, former Premier of Alberta, was a former Principal; Paul Brandt, a western singer, was a student, as was Tommy Chong of Cheech and Chong fame. The surrounding community has a mix of older homes and beautifully renovated mansions that overlook the downtown area of Calgary.

### Overview of NIS - Involvement and Impact

As a forerunner to Network of Innovative Schools (NIS) designation, this school formed an ICT Taskforce, the purpose of which was to chart a course for ICT integration that would be inclusive, cross-curricular, collegial and process based. Subsequently, the school was selected to be an NIS school because of its strong desire to implement technology innovations and to increase the computer skills of its diverse populations. Many students come from lower socio-economic areas of the city and do not own computers. Having a solid technology component in the school has resulted in an increased skill level for students and has provided them with a variety of career choices.

Information on the school's Web page describes several ICT projects with the common theme of integrating technology across the curriculum (two representative titles being *Cross-curricular ICT Support* and *The High Risk and Learning Challenged Project*.)

The Web page has a detailed three-year plan (starting in 1999/2000) that sets goals and criteria for measuring progress and successful implementation of ICT. The plan contains 13 innovative elements ranging from curriculum projects to the establishment of an ICT-based career centre to aid students with career choices.

Many teachers have created interesting and innovative projects such as the *ArteMail* GrassRoots project described in the next section. This has helped them implement the Alberta Learning mandated *ICT Program of Studies*. Teacher professional development and technology readiness has been the focus of the NIS initiative and the majority of the funding has been utilized in this manner. Also, teachers who participate in NIS projects have networked with other members of the NIS, for example, by attending NIS sponsored conferences. The NIS contact pointed out that this school has played a mentoring role by receiving visitors to the school, by being involved with conference calls and by attending conferences.

### Overview of GrassRoots - Involvement and Impact

This school has had limited involvement in the GrassRoots Program so far. A single project is being coordinated by the art teacher who has been working with her students in a collaborative project called *ArteMail*. The students in one of the art classes partner with students in another Calgary high school art class. The students in one school start a piece of abstract art by using Adobe PhotoShop. The unfinished art, along with an accompanying journal, is e-mailed to the second school where the students continue to manipulate the image and add to the conversation. The art and the conversation gradually build as the work travels from one school to the other for four to six times. Later, to celebrate their partnership, the students from both schools meet and display their pieces in an on-site art show at the premises of a corporate partner. The financial award provided for this GrassRoots project was put towards the development of the technology component of the Fine Arts program. Some examples of the very attractive artwork can be found on the school's Web page.

### Learning and Innovation

Even though there have been few GrassRoots projects, NIS projects have been very stimulating for the students and the faculty members who have used such software as Inspiration, Maestro, SIRS, PowerPoint and Dreamweaver. Students have been very focused and



excited about their new learning and proud to show their parents the results of their work in their labs and on-line art class. According to one teacher:

---

*From time to time, we have celebrated our work by inviting other interested parties (such as special dignitaries and corporate partners) to special events that showcase our work in the technology areas. This helps to profile our school in a positive way.*

---

The *ArteMail* project is coordinated by the art teacher who describes the experience with new technology as very valuable to the students' visual and graphical development. This project exposes students to technology skills that foster career choices (e.g., by using PhotoShop) and also permit them to partner on-line with another high school art class. These are important employability skills in the *Personal Management* and *Teamwork* sectors, which were highlighted in the *Employability Skills Index 2000+* published by the Conference Board of Canada (2000).

Students learn ICT skills in collaboration with their peers and with their teachers' guidance. Some students come to the school with a high skill level and others come from high-needs schools with little technological equipment and resources. The ICT skills of this latter group are significantly below the skilled group but, after students take the appropriate technology classes, the skills gap begins to narrow.

## Leadership

The school administration supports the work of teachers and the technology initiatives they undertake. As well, there is a core group of teachers who meet on a monthly basis to share and talk about project information, new insights and professional development opportunities. These teachers attend workshop sessions, host professional development sessions, and play the role of lead teacher with regard to teaching particular software programs. The school board also has an ICT specialist who holds meetings for curriculum leaders and offers technology skills sessions to the 32 schools he serves.

## Increasing Capacity

The fear expressed in this school was that the adverse labour conditions, a lack of preparation time, and an uncertain future regarding the amount of extra work to be expected of teachers were all factors that mitigated against teachers taking on GrassRoots projects.

## Summary and Conclusion

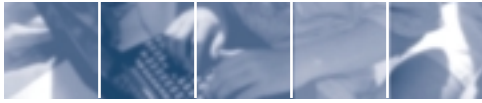
The school earned NIS status because of its commitment to the integration of ICT as outlined in detail on its Web page. While there has been very limited involvement in the GrassRoots Program, students, teachers and the school in general have benefited from the NIS designation. Specifically, by virtue of NIS funding, the school has been able to purchase new hardware and software, which has increased access to technology and that, has motivated them to develop ICT skills. The teachers have the opportunity to attend NIS conferences, to network with other schools and to mentor those who request assistance. While the administration is supportive, it is a core group of teachers who are identifying the professional development needs of the staff. The present confrontation between the teachers and the provincial government appears to be adversely influencing the inclination of teachers to become involved in new initiatives such as GrassRoots. It was the hope of the interviewee that reconciliation of workplace issues, together with the motivation that comes with GrassRoots funding, will see a growth in the number of projects in the future.

### Crescent Heights High School

Jim Kelly, Principal  
Ellen Sears, NIS Contact  
1019 1st Street NW  
Calgary, Alberta  
T2M 2S2  
403-276-5521  
403-777-7349 (fax)  
[epsears@email.cbe.ab.ca](mailto:epsears@email.cbe.ab.ca)  
<http://www.cbe.ab.ca/b815>

\*Because of teacher labour unrest in the province of Alberta, this case study is based on a single, but detailed, e-mailed response from the NIS contact. Information was also gathered from the school website.

Crescent  
Heights High  
School



## Earl Grey School

### Overview of the School and the Community

Earl Grey School was the first Junior High School in Western Canada with the first students beginning in September 1915. Because of its age and many prominent graduates, Earl Grey has maintained a sense of history, but has also kept up with the times in programming. It is presently serving 265 Nursery to Grade 8 students with a staff of 20 teachers. This school promotes the involvement of women in ICT activities, and to that end there are all-girl classes in Grades 7 and 8 where science, mathematics and technology are emphasized. The school has also provided ICT short-courses to women in the community, and there are plans to provide ICT equipment to senior citizens in a nearby nursing home.

### Overview of NIS - Involvement and Impact

A number of ICT initiatives had taken place before the NIS designation and they were thought to be influential in the school receiving NIS status. In the early 1980's an Apple computer lab was set up in the school. In 1992 a new science lab was added and a new IBM computer lab was installed for the 1993-94 school year and, in March of 1998, a new computer lab, the Hewlett Packard Technology Centre, was opened.

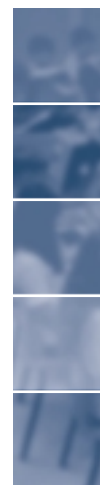
As a result of the above initiatives, Earl Grey School has made significant progress in using technology to deliver the curriculum. Especially because of the new labs, there has been excellent access to computers. In 1998 the two computer labs were networked, along with the science lab and the library. Plans are underway to network the rest of the school. By using appropriate software, specialized sensors and probes, students run experiments and chart the results using the computers.

ICT is now a regular part of the curriculum in all classes, and there is a great range of application, from art to

social studies, science experiments, mathematics and language arts, all with the aim of using technology to improve learning outcomes. Significant sums of money have been allocated to purchase special equipment such as digital cameras, a scanner, probes and sensors, an LCD projector, a CD writer, video capture cards and numerous software programs. In addition, the school is piloting a computerized junior high report card in which all teachers participated in the direct application. In all situations, there has been a team approach to further the goal of improving learning through this new medium and the staff is pleased with the results. On numerous occasions, staff members have spoken to other organizations, and the school holds this activity of sharing with others in high esteem.

As a result of NIS funding that has provided access to new technology, the students have been exposed to new and innovative technology activities such as video editing and video conferencing and they have been provided with the opportunity to network and collaborate with other students and schools across North America.

Teachers have benefited from attending national conferences and they have had extensive professional development opportunities. In 1999, three staff members attended the first NIS Institute in Montreal where they met and worked with the teams from the other 23 schools who were also chosen to take part in this project. In 2000, an additional 30 schools were added to the network and four staff members, along with the District Technology Support Teacher, attended the second NIS Institute that took place in Ottawa. In 2001, another 35+ schools were added to the network and, once again, teachers from this school had the opportunity to attend the third NIS Institute in Mississauga. They were joined by approximately 30 educators from Holland who were part of a similar network in Europe. The NIS project has allowed the school to network with educators from across Canada, the United States and Europe and to establish many relationships with a number of schools in a variety of forms. The teachers have taken part in numerous professional development opportunities. They have received financial assistance



to allow the innovative work in ICT to continue and have presented a number of workshops to other educators. They have also formed mentoring relationships with other schools in Winnipeg and across Canada and have worked with both member and non-member schools in Canada and the United States to design and implement a number of innovative projects.

The students have also had numerous opportunities to showcase their work and their talents by presenting at events such as the Conference Board of Canada's Annual Conference. In general, the students have benefited from their involvement in this project.

A major component of NIS involvement has revolved around mentoring/sharing knowledge with other educators and schools. To date this school has mentored a number of schools in a variety of ways both in Winnipeg and across Canada. Staff have worked with other educators to help design and create school websites, to teach software packages, such as Studio 7 video editing software, CuSeeMe video conferencing software and to teach how to use scientific sensors and probes. At times, the mentoring activities have involved assisting other schools in the design of lab facilities and sharing knowledge of integrating ICT into all curriculum areas. Mentoring activities have resulted in several long term and ongoing relationships with several schools and have often resulted in the schools working together collaboratively to design and implement curriculum based projects for the students. Parents also volunteer their time, money and skills to help with projects.

Under the direction of the Principal, there has been significant exposure in the media to Earl Grey's move toward the use of ICT. Over 100 interviews have taken place to date on the all-girls program, on the various grants the school has received and on various other topics related to the use of technology at Earl Grey.

## Overview of GrassRoots - Involvement and Impact

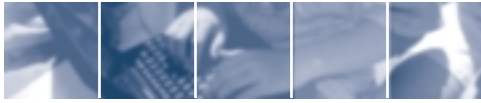
There was inconsistency regarding the reporting of the extent to which staff is involved in projects that are

specifically designated as GrassRoots. The technology teacher stated that the school has had very little involvement in GrassRoots — one or two projects a year. On the other hand, the Principal felt that GrassRoots had been used “many times”, and the classroom teacher thought that approximately 50% of the staff was involved in the program. There are two references to GrassRoots on the website — an award for being the “Connected School of the Week”, March 6-10, 2000, and an on-going involvement in “Project Groundhog”. Funds generated through the GrassRoots Program go directly to the teacher and classroom that submitted the project.

While increased technical skills of students is a priority, one teacher stated that the overall effect on students is that it has increased their self-esteem. Another pointed out that GrassRoots and NIS funding provide new ICT equipment that enhances the students' future experiences. Specifically, students at the Grade 4-6 levels are currently involved in a video conferencing project with Vernon River Consolidated School in Prince Edward Island. Students will be developing newscasts for one another about their respective schools and provinces that they will be sharing via video conferencing. (See more detail in the Vernon River Case Study.) A series of “getting acquainted” conferences have been scheduled for the second week of April and the students are looking forward to meeting “face-to-face” for the first time. Teachers from both schools have met in this forum on several occasions for the purposes of planning this project and to ensure that all the “bugs” have been worked out prior to student involvement.

Students in Grades 7 and 8 continue to work on electronic portfolios that encapsulate their learning in a multimedia format. The students are using a number of software programs in this endeavour, including PowerPoint, Word, Excel and a variety of software packages for video production and editing, imaging, and audio production. In addition, the students use digital cameras, scanners, and video cameras. They will be reviewing their portfolios with their parents during the next parent-teacher evening.

Earl Grey  
School



## Examples of Innovative Approaches to GrassRoots

Each interviewee mentioned “Project Groundhog” as being a GrassRoots project that stood out because it involved sharing and communicating with students all across North America. More than 200 schools from across North America and Europe, representing over 5,000 students, take part in this six-week project. Students work in teams consisting of approximately ten classrooms in each. The participating classrooms begin by naming their groundhog mascots and then predicting if he/she will see his/her shadow on Groundhog Day. For the next six weeks the students track local weather temperatures and conditions that they share with their teammates.

In this school, electronic probes and sensors are used across the grades. While it was not clear if the resulting outcomes were used as GrassRoots projects, it was pointed out that the students used electronic sensors extensively in their investigations. In a current study, the students are investigating the pollution levels of lakes and streams in their area and comparing results with those of other schools.

## Learning and Innovation

In general, both students and teachers are becoming proficient in the use of ICT—for example, word processing, presentations software, spreadsheet, and file transfer procedures.

The respondents pointed out that both students and teachers are becoming proficient in the *fundamental skills* as identified by the Conference Board of Canada and inherent in word processing, spreadsheets, and file transfer procedures. Specifically, it was reported that HTML processes are used more by the higher grades, while the Primary and Elementary students use the simpler “Web-editor”.

In the area of *personal management skills* it has been reported that the overall effect on students is that it enhances their self-esteem. The Principal expressed the view that GrassRoots caused students to “reach inside

themselves and be creative”—to face the challenge of identifying an issue and designing a process to achieve a desired end.

## Leadership

While the administration is supportive of the technology initiatives, the actual “hands-on” leadership is provided by the technology teacher, a teaching unit provided by the Human Resources Division. In the Principal’s words: “Here we have needed the one teacher to pave the way; otherwise I doubt anyone would have made time to do it.”

## Increasing Capacity

The main impediment to GrassRoots involvement was identified to be “not enough hours in the day.” That is, the teachers who already see themselves as having a full day with ordinary activities are sometimes not eager to take on new challenges like a GrassRoots project. That being the case, interviewees felt it was imperative that interested teachers be given the necessary support. Half-day in-servicing was seen as one route to take. The technology teacher felt that the new GrassRoots Web page and procedures were less user-friendly than the earlier version.

## Summary and Conclusion

This school is overtly addressing the issue of Women and Technology—for example, there are all-girl classes to stress mathematics, science and technology courses plus the offering of technology sessions to women in the community.

The school was awarded NIS status because of its earlier involvement with ICT as described in detail in earlier sections. Students, teachers and the school in general have benefited from the NIS designation. By virtue of NIS and GrassRoots funding, the school has been able to purchase new hardware and software so that the students are motivated more than ever to develop ICT skills. Teachers have the opportunity to attend NIS conferences, to network with other schools and to mentor those who request assistance.

Earl Grey  
School

**Earl Grey School**

Gail Singer, Principal

340 Cockburn Street North

Winnipeg, Manitoba

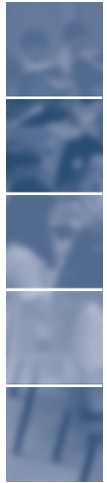
R3M 2P5

204-474-1441

204-453-4054 (fax)

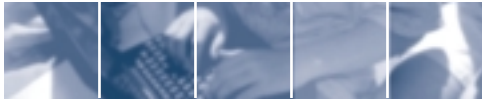
[gsinger@wsd1.org](mailto:gsinger@wsd1.org)

<http://www.wsd1.org/earlgrey>



\*The information in this case study was provided during interviews with the Principal and two other teachers.

Earl Grey  
School



## Jack Hulland Elementary School

### Overview of the School and the Community

Jack Hulland Elementary is the largest elementary school in the Yukon with 400 students in Grades K-7 and approximately 25 staff members. Situated in Whitehorse (population 22,000) this is a “community school” with several hundred parents involved in children’s programming in a variety of ways. There is an active School Council that brings a well-balanced community perspective to school-based decision-making. Physical fitness and outdoor activities are a high priority. There is also a strong emphasis placed on the use of ICT and teacher professional development. The school has access to a technology teacher and, even though he is shared by three schools, the effectiveness of the role does not seem to be diminished.

### Overview of NIS - Involvement and Impact

The NIS selection committee recognized Jack Hulland’s School Plan and the progress that staff has made in achieving their technology goals. The numerous projects done by staff over the past three years (e.g., the Marsville project, the award winning Capital Cities Project, the virtual tours project, HyperStudio projects, etc.) were contributing factors in this recognition. The school, for the third year running, has also recently received honourable mention and a \$300 grant for its website.

As a result of their NIS involvement, students and teachers are more and more involved in doing on-line research and constructing Web pages. In the 2001-02 school year, the school Web page has nine class projects in Grades 3 to 7. In addition, there are larger projects entitled “Bridges Central”, “Yukon Butterflies”, and “Yukon Ancestors”, as well as the projects mentioned in the first paragraph of this section. Teachers are becoming more comfortable with the technology because the technology committee

provides in-servicing and that reduces the burden on the technology teacher.

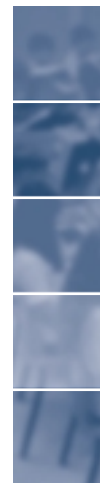
To indicate that technology is becoming more and more integrated throughout the grades, the Principal says: “ICT is becoming an everyday part of schooling ... some of our teachers are now going to other schools to help them”. Another teacher claims that, because of initiatives like the NIS: “Our school is an exciting place to be. Funding from the NIS has enabled us to purchase computers, software and other technology equipment that we just would not otherwise have access to.”

### Overview of GrassRoots - Involvement and Impact

The Principal estimated that approximately 25% of the staff was involved with GrassRoots projects. In addition to receiving honourable mention and cash awards for its Web page, John Hulland Elementary School has also been involved in at least two other award-winning GrassRoots projects: *CyberPals* (Canada’s Provincial capitals) and [GrassRoots.Communities@ca](mailto:GrassRoots.Communities@ca).

Application for GrassRoots projects are coordinated through the technology committee. The funds are dispersed according to the outcome of discussion among the teachers with the view of the teacher most closely associated with any particular project being given special attention. One teacher stated: “At first our IT teacher worked closely with us on submitting projects and spearheaded the projects, but now individual teachers are taking more of the initiative. Now a few of us submit our own and the IT teacher helps others submit theirs.”

One teacher involved his students in the application process as he felt that part of the learning experience was for students to brainstorm ideas and debate possibilities for a GrassRoots project. As far as teachers are concerned, it appears that GrassRoots has given them the confidence and incentive to try new projects using technology as an integral part of their program. Some are now talking about the possibilities of doing larger projects, involving more classes or other schools. This has the potential open up new and exciting areas for collaboration.



## Examples of Innovative Approaches to GrassRoots

For this school, a memorable project was the award winning “Butterflies On-line” done by a Grade 3 class. The teachers felt that this project was innovative because it was the first and involved the community and the parents. While there were several interactive butterfly activities and games incorporated into the project, the main feature was a series of photos and a video of the various stages of caterpillar metamorphosis, with daily commentary by the enthralled primary children. “Butterflies On-line” has been featured on CBC Newsworld.

## Learning and Innovation

With respect to the *fundamental skills* section of the *Employability Skills Index 2000+* developed by the Conference Board of Canada, one teacher says: “Personally, I have learned so much these past few years about IT in our school—I have learned how to do Web pages, and have involved the students more and more in the making of them and in doing on-line research”. While last year students were mainly using word processing, this year they are importing video into iMovie, using scanners and digital cameras for taking images, importing these images into Photoshop and manipulating them, and using Dreamweaver to help set up Web pages.

Skills categorized under *teamwork skills* were also identified by the interviewees. One teacher pointed out that: “Students in my class now come up with ideas for projects, and it’s great to hear them as they excitedly debate what will and won’t work for a (GrassRoots) project idea, and then try out their ideas.”

It was pointed out that GrassRoots promotes learning outside the four walls of the classroom because students interact with parents and other community members and services as they collect information for the project at hand.

## Leadership

The Principal did not see his role as being a champion of GrassRoots. However, he was certainly willing to

support the initiative if teachers were willing to make the effort. A teacher on staff agreed with this view, stating that it was the “computer coordinating teacher and ICT Committee” who were the main source of leadership but that the administration was very supportive in helping the technology committee and technology teacher to circumnavigate bureaucratic obstacles.

## Increasing Capacity

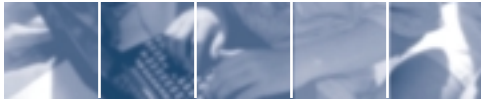
The Principal stated that the most important requirement for participation in the GrassRoots program is a desire and motivation on the part of the teacher. Even the unskilled teacher, if properly motivated, will collaborate with fellow teachers and their students to learn the skills they need. One teacher felt that while some teachers are resistant because they are unsure of this new technology, they could be brought on-line because other teachers were patient and willing to coach them. In fact, the Principal pointed out that some teachers from his school were traveling to other schools to help the teachers there.

One of the teachers felt that the most difficult part in the process was finding the time to become familiar with the computer technology and software programs. In this school there are lots of impromptu sessions, at lunch, during a break or after school. The ICT committee also sets up more formal sessions on specific topics for after school sessions. Some teachers take advantage of courses that are offered in the evening by the Department of Education or by Yukon College.

## Summary and Conclusion

The school was given NIS status because of its earlier involvement with ICT even though it was handicapped with out-dated equipment. While all student projects are not done with GrassRoots in mind, students, teachers and the school in general have benefited from being affiliated with the NIS and through participating in GrassRoots projects. By virtue of financial grants from the NIS and GrassRoots, the school has been able to purchase new hardware and software and, as a result, the students are motivated more than ever to get involved in ICT

Jack Hulland  
Elementary  
School



projects and develop their ICT skills. The teachers have opportunities to attend the NIS national conferences, to network with other schools and to support and mentor teachers who request assistance.

**Jack Hulland Elementary School**

Jim Tredger, Principal

Trevor Mead-Robins, NIS Contact

1304 Fir Street

Whitehorse, Yukon

Y1A 4C4

867-667-8496

867-393-6234 (fax)

[jackhulland@yesnet.yk.ca](mailto:jackhulland@yesnet.yk.ca)

<http://www.yesnet.yk.ca/schools/jackhulland>

\*This case study is based on a forty-five minute interview with the Principal and on an e-mailed response from a classroom teacher.

Jack Hulland  
Elementary  
School



# Joyce Public School

## Introduction

In this school three interviewees came together in a focus group and were interviewed on Friday afternoon, March 22, 2002. The group consisted of the Principal, the librarian/technology convenor and the IT specialist.

## Overview of the School and the Community

Joyce Public School has 375 students in Grades K-5, 85% of whom are ESL students. There are 17.5 teacher units attached to this staff. Because many parents are new Canadians, a special effort is made to contact them and get them involved with the school.

## Overview of NIS - Involvement and Impact

Before achieving the Network of Innovative Schools (NIS) designation, Joyce Public School was awarded the Canada Award of Excellence in Education by the Ontario Ministry of Industry. Three members on the staff of 17 had already received "Teacher of the Year" awards, which are awarded annually by the school board.

The interviewees stated that the former technology teacher had put much effort into enhancing the technology profile of the school. Also, because of the large English as a Second Language (ESL) parent base, the school had to become entrepreneurial and move outside its parent community when extra funding was needed. This resulted in the development of many partnerships with local businesses and community agencies and, as a result, the school received a lot of attention for its success. For example, in 1999, the City of Toronto presented the "Making a Difference for Students Award" for exemplary school projects. In 2001, the school received an award for "Outstanding Service to Children and Families of Joyce Public School" and a teacher on staff was designated as the *Toronto Sun* Teacher of the Year.

As a result of their involvement in the NIS Program, teachers have the opportunity to network and share their expertise both on-line and in person through the NIS national conferences that they attend. Some of the NIS projects and initiatives are:

- *Data Projection* - projecting on to a large screen unleashes infinite information to students with the visual stimulation of multimedia
- *Electronic White Board* - an evolution of the chalk board
- *News Ways in Teaching Literacy* - WiggleWorks

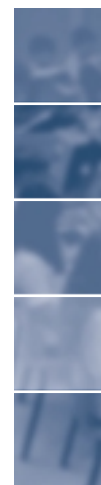
## Overview of GrassRoots - Involvement and Impact

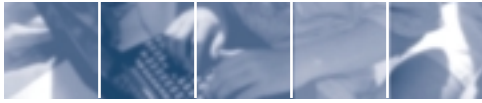
This is the first year for GrassRoots in this school with approximately 3 out of 17 teachers participating. The classroom teachers seek help and guidance from the half-time IT specialist. According to the school Web page, there are also formalized IT sessions every two weeks. Topics covered in these mini-workshops are e-mailing, using a digital camera and importing images for use in various software packages, recording with a video camera, editing into a final video and creating a slide show and using it within a lesson.

On receipt of GrassRoots funding, the successful teacher collaborates with the IT committee to identify where and how the funds should be utilized. The teachers see GrassRoots as a facilitator in moving the ICT beyond such activities as word processing to the more action-oriented Internet activities that help prepare students for success in the new economy.

## Examples of Innovative Approaches to GrassRoots

One teacher expressed excitement about a picture-sharing project between Joyce Public School and a school in Uganda. Another mentioned a family tree project undertaken by the Grade 2 class. The family tree project has a special aspect because most of the students are ESL students with family connections outside of Canada.





## Learning and Innovation

The teachers in this school, being new to GrassRoots, believe that their involvement in GrassRoots projects will help develop skills in storyboarding, using scanners, and skills with various software packages such as paint tools and MIDI programs. Such skills may be assigned under the heading of the *fundamental skills* category of the *Employability Skills Index 2000+* published by the Conference Board of Canada. There is an array of IT resources consisting of multimedia, Internet ready labs, digital cameras, and sound editing equipment the use of which will foster the attainment of the skills.

As regards *teamwork skills*, the Principal sees the “potential, excitement, and stimulation of new learning opportunities” with networking and sharing being very important outcomes. The school Web page gives much detail on this point of view. Examples are:

- a partnership exchange with a school in Sweden called Sergeltopps School.
- an open invitation for neighbouring schools who are interested, to come and use the facilities and/or borrow equipment.
- numerous visits to the school by Principals and staffs of feeder schools to look at how various emerging technologies are implemented into daily teaching practices.
- a request from York University’s Faculty of Education to do a demonstration how Lego Dacta (robotics) can be used to achieve the outcomes of a unit in the Grade 4 and 5 science curriculum.

## Leadership

The three interviewees, the Principal, the librarian/technology convenor and the IT specialist, considered themselves to be the technology leaders in the school. According to the school Web page, a two-hour after-school professional development workshop is held every other Thursday for the school’s staff; workshops are also opened for staff from other schools to attend. The workshops focus on special topics with the overriding concern being “how will this help the student”. In addition to the topics mentioned under the heading “Overview of GrassRoots”, others are using the School

Discussion Forum System and designing a newsletter and creating exercise worksheets.

## Increasing Capacity

The interviewees were of the opinion that, once one teacher takes the initiative to get involved with the planning and preparation for a GrassRoots project, they will become a role model for others and the positive results (publicity for the class, the financial incentive) will motivate others. Teachers must be convinced that the GrassRoots Program can help achieve the proposed outcomes of the curriculum instead of being viewed as a whiz-bang add-on, and, to this end, those already involved were actively promoting the program to their colleagues.

## Summary and Conclusion

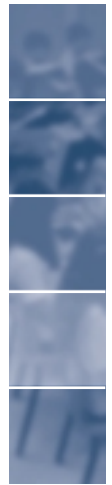
Being in an ESL environment, this school could not rely to a large extent on the parent community so it created partnerships with other community sectors and became involved in award-winning ventures in the process. It was, in part, such activities, together with the leadership of a former technology teacher that resulted in the school being designated as an NIS school.

As a result of NIS funding and the more limited GrassRoots funding the school has been able to purchase new computer hardware and software. As a consequence, the teachers and students have the tools they need to become involved in ICT projects and they are motivated more than ever to develop and increase their ICT skills.

### Joyce Public School

Cheryl Paige, Principal  
26 Joyce Parkway  
Toronto, Ontario  
M6B 2S9  
416-395-2606  
416-395-2609 (fax)  
[cheryl.paige@tdsb.on.ca](mailto:cheryl.paige@tdsb.on.ca)  
<http://schools.tdsb.on.ca/joyce>

\*The information contained in this case study was provided by a teleconference with the Principal, the librarian/technology convenor and the IT specialist.



# Kars Public School

## Overview of the School and the Community

Kars Public School is in its 56th year of operation. It was built originally as a junior and senior continuation school, serving students from the townships of Osgoode and Rideau. It has evolved into an Early French Immersion Centre offering a bilingual education in English and in French to approximately 150 students from junior kindergarten to Grade 5 with a teaching staff of seven teachers. The community of Kars itself, although close to the city of Ottawa, has fewer than 1,000 people.

A gymnasium, a library, a computer lab, a Robolab (robotics), a learning resource room and a technology room enhance learning experiences within the school. The “Learning Yard”, a *participark*, soccer field and neighbouring nature trails extend outdoor education throughout the seasons. Parents are involved in assisting teachers and coordinating special events. There are close links with community agencies that support programs.

## Overview of NIS - Involvement and Impact

Kars Public School was awarded Network of Innovative Schools (NIS) status because of the tremendous efforts of a former Principal who had strong interest in the integration of technology into the classrooms. The NIS contact also indicated that the production of an interactive CD ROM game entitled “KPS Science Zone” probably influenced the NIS decision-makers. (The game is downloadable from the school’s website).

A more recent priority has been the development of a robotics program that uses Lego kits. This has stimulated much student interest at all grade levels. Teachers have found the robotics technology to be very useful in their science and technology units. Moreover, the integration of robotics into the curriculum was instrumental in the school’s receiving a NIS award. The success of the robotics project has

resulted in visits of students from other schools. As well, some mentoring has taken place via e-mail and telephone as teachers in other areas of Canada seek out information on the robotics project. Parents have also attended robotics sessions.

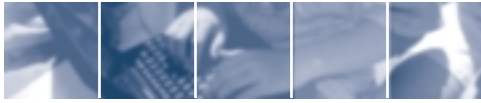
## Overview of GrassRoots - Involvement and Impact

Because the school is so small, it is rare that more than one GrassRoots project is developed in any one year. Typically, the application is made by the teacher concerned (in consultation with the Principal) and the GrassRoots funds are dispersed by the technology teacher to upgrade the school’s technology—the present goal is to purchase a digital camera. This year’s project was done with the Grade 5 class and it involved publishing research on an owl project on the Internet. The students completed a novel study on Farley Mowat’s, *Owls in the Family*; they then conducted individual research projects on owls. After they had completed their research, they each wrote an essay and published their inspiration brainstorming page, and constructed an on-line glossary of owl terms as part of the website. Included on the website is a complete teacher resource section that includes rubrics, lesson plans and curriculum links.

## Learning and Innovation

In this school, GrassRoots projects are used to help students see the connection between their school curriculum and the larger community. The focus is placed on involving all of the students in a particular class. The students study a concept individually and in project teams. They then produce individual work related to their curriculum outcomes that they publish on the school website. The teacher provides the necessary coaching and guidance for students and just like the students she publishes her work on the website. Students in this school enjoy utilizing technology and participating in the project-based approach to learning.

In a recent project, the students built a robotic insect and subsequently used it in a video production called *Insectopia: A Land Beyond Kars!* The robotics program has helped focus on *teamwork skills* as highlighted in the



*Employability Skills Index 2000+* published by the Conference Board of Canada. Students build their projects from Lego kits. Furthermore, as they do a GrassRoots project, the children must know how to manipulate a mouse, operate a computer, follow simple programs for transfer of material from a word processor to a Web page, and be able to use search engines, all of which can be classified under the *fundamental skills* section of *Employability Skills Index 2000+*.

## Leadership

Interviewees were quick to give a former Principal much of the credit for the school receiving NIS status. While the present administration is supportive of technology and the integration of technology across the curriculum, it is the *computer contact teacher* and the individual classroom teacher who initiate GrassRoots projects and provide the vast majority of the leadership. A computer contact teacher is one who gives technical support as an extracurricular duty. District support is available through the Educational Technology Integrators (ETI's); these individuals are technologists, each of whom is assigned to several schools in the district.

## Increasing Capacity

To increase involvement in GrassRoots it will be necessary to convince teachers that the project route is a sound pedagogical move to achieve program objectives. Teachers who view themselves as already being overworked are not inclined to look at innovation in a positive light. The NIS contact also noted that she would like to see a GrassRoots Handbook that could help to clarify the application process.

Kars Public  
School

## Summary and Conclusion

With approximately 150 students and seven teachers, this school is certainly one of the smallest of all NIS schools. It received NIS status due mainly to the efforts of the former Principal who spearheaded a school-wide initiative to integrate ICT across the curriculum. While GrassRoots projects are having a motivational impact on the students ("even disinterested students

are turned on by the multi-media approach"; says one teacher) and a positive effect on school resources, it is the focus on robotics that is the distinguishing feature of the school's involvement in ICT. The success of the robotics project has resulted in visits by students from other schools, teacher mentoring via e-mail and phone and the setting up of robotics sessions for parents.

At Kars Public School, the usual leadership roles provided by the Principal, the participating teacher and the "technology teacher" are augmented by ETI's who are each assigned to several schools within the district.

### Kars Public School

Brenda Spearman, Principal  
Michelle Marette, NIS Contact (REI Contact)  
P.O. Box 10 6692 Rideau Valley Drive  
Kars, Ontario  
K0A 2E1  
613-489-3919  
613-489-2315 (fax)  
[michelle\\_marette@ocdsb.edu.on.ca](mailto:michelle_marette@ocdsb.edu.on.ca)  
<http://www.ocdsb.edu.on.ca/KARSweb>

\*In addition to the use of records available on the Web page, this case study contains information gathered through two telephone interviews: one with a classroom teacher and one with the NIS contact.

# Roncalli Central High School

## Overview of the School and the Community

Roncalli Central High School is located on the Great Northern Peninsula in northern Newfoundland and Labrador. It has a staff of 17 teachers and a student population of 285. The students are bussed to school from five surrounding communities. The school was built in 1975 and in recent years has developed a vibrant technology program that includes a community radio and TV broadcast centre.

## Overview of NIS - Involvement and Impact

According to the technology teacher, recent Network of Innovative Schools (NIS) visitors “shook their heads” in disbelief when they saw the extent to which technology had been integrated among the classes and across the curriculum. Students are comfortable with the technology, whether it’s a digital camera or a recently purchased digital art palette. Many students are leaving school with very worthwhile skills over and above the usual computer skills. That is to say, they have progressed beyond Web-transfer of the printed word and graphics to more involvement with audio and video projects. For example, animation films are being created, audio and video clips are being edited and programming skills are being learned.

According to the Principal, the NIS Program has presented professional and pedagogical opportunities for teachers. Teachers are attending NIS conferences on a rotating basis, and both teachers and students are reaping the benefits of collaboration between schools in other provinces. Sometimes the collaboration is virtual and sometimes there is an actual exchange visit arranged. For example, a virtual collaboration with a class of music/theatre students in New Brunswick resulted in subsequent face-to-face exchange visits for both groups of students.

## Overview of GrassRoots - Involvement and Impact

In recent years, between 25 and 30 GrassRoots projects have been completed at Roncalli Central High. This year, there will be 10 or 12 projects (done under the guidance of approximately one-third of the staff). Applications for GrassRoots funding, which must be based on curriculum outcomes, are coordinated through the technology teacher who is also the NIS contact in the school. All GrassRoots teachers discuss and collaboratively decide on how and where the financial awards are to be allocated. Sometimes students are also given a voice.

According to the technology teacher, the most immediate impact on students and teachers involved in such projects is the challenge to learn HTML and other skills associated with the process of transferring a project to the Internet.

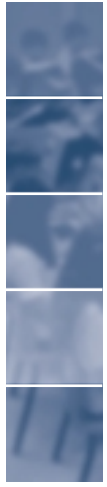
## Examples of Innovative Approaches to GrassRoots

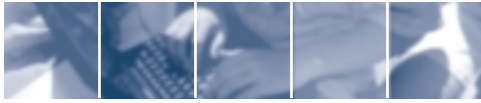
Students at this school have become learning partners with various community sectors as they complete projects related to crime prevention, the fishery, religion, and family living. Over the years, GrassRoots projects have evolved from the printed word and graphics to projects that include audio and video. Recently, the school received a national award for a 30 second video clip about *Drinking and Driving*. This was a clip submitted to the contest “Extreme Attitudes” sponsored by CBC TV. Other awards have been won as well for audio commercials, again from CBC radio. The clips are not GrassRoots projects but are on GrassRoots websites or websites at the school.

A very exciting GrassRoots project on the horizon—one in which the students and teachers will collaborate with their NIS counterparts across Canada—is the production of a music CD, a portion of which may very well be original student compositions.

## Learning and Innovation

The acquisition of HTML skills is critical. The technology teacher felt the classroom teachers must be





willing to learn different teaching strategies beyond “chalk and talk”. This is it being approached through an increased emphasis being placed on project-based approaches to learning during professional development days. The Principal’s view is that the provision of PD sessions to cover ICT issues is critical. These can be full-day workshops, a special staff meeting, or after-school consultation with the experienced teachers on staff. The skills to be attained include those required to create a Web page: importing pictures, using a digital camera, converting audio and video to the Web and using MS Front Page and file transfer protocols (FTPs). These skills are closely associated with the subcategories of *communicating* and *managing information* under the more general heading of *fundamental skills*, as identified by the Conference Board of Canada in the *Employability Skills Index 2000+*. Also, the acquisition of *teamwork skills* is fostered by doing projects that involve sectors of the immediate community (e.g., the fishery, law enforcement, etc.) and the virtual community (e.g., involvement with other schools across Canada).

When a GrassRoots project is proposed in a classroom, the Principal’s view is that “the teacher just can’t throw it at the students. The teacher must facilitate the process by having a plan that keeps the students focused.” When all goes well, the end result is the acquisition of additional resources for the school and the associated learning opportunities for both students and teachers.

## Leadership

The technology teacher/NIS contact person is the primary leader when it comes to GrassRoots. In the past, Principals who have not had technological skills have been supportive of the program in other ways, but the current Principal is a big supporter of ICT and is actively encouraging all teachers to get involved with technology through GrassRoots projects.

## Increasing Capacity

Teachers have to become comfortable with HTML, digital photography and other technology skills. It must

be demonstrated to teachers that GrassRoots projects are a worthwhile way to satisfy curriculum outcomes. If possible, an example should be given, then professional development and the time and resources to carry out the project should be provided. One interviewee suggested that some sort of “academic credits” be awarded to teachers who take part in ICT professional development sessions.

## Summary and Conclusion

The school was awarded NIS status because of its extensive involvement with ICT. Students, teachers and the school in general have benefited from the NIS designation and several successful GrassRoots project submissions. Specifically, by virtue of NIS funding and GrassRoots funding the school has been able to purchase new hardware and software so that the students are progressing beyond earlier ICT skills and are becoming more exposed to audio and video editing and the production of animated clips. The teachers have the opportunity to attend national conferences, to network with other schools, to collaborate both virtually and in person and to mentor those who request assistance.

Under the leadership of the Principal and other technology-minded teachers, this high school appears to be excelling in the use of ICT and its application across the school curriculum.

### Roncalli Central High School

Aurele Beaupre, Principal

Don Tulk, NIS Contact

PO Box 119

Port Saunders, Newfoundland

A0K 4H0

709-861-3625

709-861-3206 (fax)

[dtulk@stemnet.nf.ca](mailto:dtulk@stemnet.nf.ca)

<http://www.k12.nf.ca/roncallips>

\*The information contained in this case study is based on three separate interviews with the NIS contact, the Principal and a classroom teacher.

Roncalli  
Central High  
School

# Vernon River Consolidated School

## Overview of the School and the Community

This is a small rural school built in the early 1970s during the open concept era. It houses 250 students in Grades 1-9, as well as a community kindergarten. There are 27 staff members consisting of 17 teachers, seven teacher assistants, one secretary, four bus drivers and two custodians. There are 23 communities that feed in to the school. As a local Community Access Program (CAP) site, the school is the centre-point of the community it serves.

## Overview of NIS - Involvement and Impact

The selection of the school for Network of Innovative Schools (NIS) status was based on the widespread use of Information Technology by the students and teachers. The school has a “state of the art” computer centre with a lab of 30 computers and many computers in classrooms. Computer instruction begins in Grade 1. The focus of technology use is not in “teaching” technology but rather in teaching how technology can assist in the learning process. Throughout the school, students use the Internet widely as a research tool and all students and staff have their own e-mail address.

With its NIS status, the school lists the following as the main priorities:

- To provide additional training and professional development to the staff.
- To share with other interested schools the experiences of Vernon River Consolidated School with the integration of technology into the curriculum.
- To allow universities to conduct research on the effectiveness of integrating technology into the curriculum.

Becoming an NIS member confirmed that the innovative teaching that was happening at the school was worth-

while and significant and that the teachers were on the right track with their use of technology. Teachers who are involved with technology take pride in being leaders in the field, and students also demonstrate a sense of pride in their school and teachers. Over the years, there have been many provincial, national and international visitors who have come to the school to experience how technology is being used in the classroom.

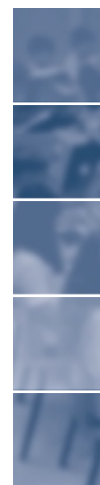
## Overview of GrassRoots - Involvement and Impact

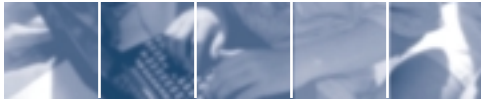
The teacher-librarian, who also coordinates GrassRoots applications, expressed the opinion that there is a high rate of participation in this school—the Vice-Principal estimated about 50% to 60% of teachers are involved and that they have been involved with over 60 projects over the past three years. These are all listed on the school website. The most striking features of the site is that every grade level from Grades 1 to 9 has done at least one GrassRoots project. A characteristic of most of the projects is that each child in the class has had a part to play in the development of the project.

Through NIS and GrassRoots, the school is able to set up a separate technology fund (administered by three or four teachers) which is used to support technology, professional development and purchases. Related to this, the teacher-librarian expressed concern that this year there is a cap of \$1,800 as the maximum amount of GrassRoots funding that can be awarded to any one school.

The interviewees agreed that the projects challenge students to learn more and to do more with technology. Students gain experience with new technologies brought into the school (e.g., with digital video camera, video editing suites, video conferencing technology, LCD projectors, SmartBoards, etc.)

As part of Vernon River Consolidated School’s involvement in the NIS, staff asked some of their senior students if they would “consider giving part of their weekend to share some of their computer skills with students from another school ... the request was met with enthusiasm and the planning began.” (See school Web page.)





## Examples of Innovative Approaches to GrassRoots

All students in the school are involved in a Remembrance Day Project. It may be found at <http://www.edu.pe.ca/vrcs/GrassRoots/2000/remembrance2000/index.html>. The Vice-Principal reported that the site includes student use of technology in virtually every conceivable way: writing, graphics, and Web page design. Specifically, the primary grades drew pictures and the elementary and junior high grades wrote poems and short essays. An interesting feature of the project is a number of quizzes for which immediate feedback is given. The Web page also includes photos of war veterans' participation in school affairs, and includes many Remembrance Day links to other sites.

In another GrassRoots project, six Grade 4 students completed a unit on the news in which they each wrote two news stories using the traditional 5 W's as their outline. Following the written component, they used Corel Presentations with one computer as a teleprompter and then did live broadcasts of a newscast from their own designed set. They broadcast to their own class in the school, to another school in Prince Edward Island and will soon broadcast to a school in Manitoba. In the words of the Vice-Principal: "It has been an awesome project!!!"

## Learning and Innovation

The teachers stated that the students enjoy using technology and the Internet postings of 1998-1999 and 1999-2000 have allowed each student to post his/her individual work as part of a GrassRoots project with a common theme for the whole class. As far as required skills are concerned, the Vice-Principal identified the various skills necessary to publish on the Internet, plus the more basic skills of word processing, e-mailing with attachments, scanning and modifying graphics, all of which fall under the heading of *fundamental skills* in the Conference Board of Canada's *Employability Skills Index 2000+*. One of the interviewees clearly identified the importance of attaining the *teamwork skills* as another skill set identified by the Conference Board of Canada that students are acquiring. He pointed out

that "With technology, it is important to remember that we all learn from each other—students here assist and teach each other as well as sometimes teaching the teachers."

## Leadership

The teacher-librarian in this school believes that all staff members are supportive of the GrassRoots Program. This support starts with the administration encouraging people to participate and, once the project is completed, they help them celebrate their accomplishments. The administration has also been supportive in providing time to prepare proposals and submit project reports. The Vice-Principal is always willing to help teachers with their projects at any stage—planning, implementing, and wrapping up.

The school's teacher-librarian also plays an important role. Due to the close proximity of the schools learning resource centre to the computer lab, she is often available to help teachers and students. From the technical aspects of using technology to the completion of applications, she is there to provide guidance and assistance. At the provincial level, the GrassRoots coordinator provides invaluable support.

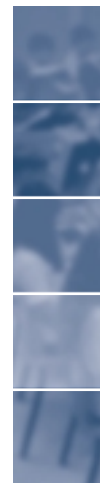
## Increasing Capacity

Since the GrassRoots criteria has changed this year, it has challenged the teachers in this school to produce better projects. The teacher-librarian believes that the challenge is to be more innovative than before. However, the classroom teacher was not quite as exuberant, claiming that proper in-school support was now more critical than ever. The other issues focused on the \$1,800 funding cap, and the lack of time during the busy school day. With regard to the later, the administration from time to time hires a substitute so that the classroom teacher can spend time working on the GrassRoots project.

## Summary and Conclusion

The school was awarded NIS status because of its extensive involvement with ICT in past years. Students, teachers and the school in general have benefited from





the NIS designation and many successful GrassRoots applications. Specifically, by virtue of NIS funding and GrassRoots funding, the school has been able to purchase new computer hardware and software so that the students are motivated more than ever to develop ICT skills. The teachers have the opportunity to attend NIS conferences, to network with other schools, to collaborate with other teachers and to mentor those who request assistance.

In this school the Principal, Vice-Principal and teacher-librarian are the main sources of leadership for the GrassRoots Program.

**Vernon River Consolidated School**

Jean Boudreau, Principal

R.R. #2

Vernon, Prince Edward Island

COA 2E0

902-651-8520

902-651-8516 (fax)

[jgboudreau@edu.pe.ca](mailto:jgboudreau@edu.pe.ca)

<http://www.edu.pe.ca/vrcs>

\*The information in this case study is based on an interview with the Vice-Principal and a focused interview with the teacher-librarian and a classroom teacher.

Vernon River  
Consolidated  
School