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MAGAZINE MAKING A DIFFERENCE WITH ICT



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- ♦ Technology Levels the Playing Field

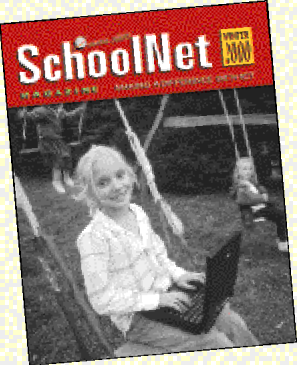
# SchoolNet

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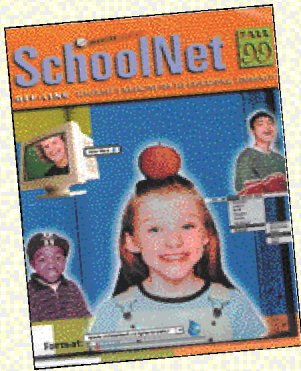
M A G A Z I N E

*Making a Difference With ICT*

## *Here This Spring*



*SchoolNet Magazine* is a high-quality publication — the first of its kind — dedicated to the application of the Internet for classroom-based teaching. SchoolNet's innovative partnership has successfully made Canada the first nation in the world to connect its schools and libraries to the Information Highway. SchoolNet supports the effective use of information and communications technologies so that young Canadians can develop the skills and competencies required to succeed in the knowledge-based economy. But to harness the full potential of the Information Highway in learning, teachers need the know-how.

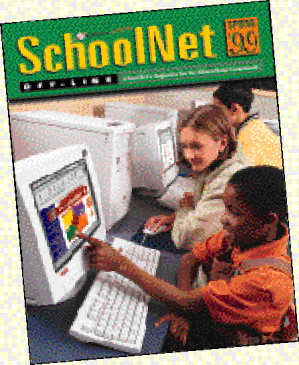


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*Cover Photo by: David Trattles*



The theme for this issue of *SchoolNet Magazine* is “Canadian Schools in Charge of Their Own Schooling.” Think about that for a moment.

Remember how things used to be not all that long ago, when schools were effectively all alike, when jobs were for life, and when learning was just for kids. It seems so quaint and far away, doesn't it?

“Canadian Schools in Charge of Their Own Schooling” as a topic would not have made a lot of sense to educators back then. Of course, the world in those days changed at a slower pace. Schools could still afford to be all alike.

Today, education is radically changed. How different schools have become, with teachers learning eagerly alongside their students, and classrooms teeming with kids teaching one another, enthusiastically mentoring and sharing their technology-facilitated discoveries.

How rapidly new technologies are creating a new reality, in which we find ourselves to be global citizens. Our whole planet is now racing to become knowledge-hyperlinked. The world's documents already are, allowing anyone anywhere to progress instantly from thought to thought, from idea to idea, in any direction, in any dimension, to any depth.

People, too, are hyperlinking. Learning networks are springing up spontaneously; global learning communities are bursting into being. Frankly, incessant change is making continuous learning essential to economic survival. Fortunately, new technologies are making lifelong learning achievable by rapidly providing crucial resources and learning tools.

How quickly society is becoming characterized by learning! Brand new technologies have brought this revolution to us virtually overnight. Consequently, today's minimum requirements for competitive national survival are universal literacy and numeracy and a healthy dose of entrepreneurship. Schools are feeling the pressure to meet this new objective with no time to lose.

As technology creates a global society of knowledge consumers and marketers, it is giving everyone the means to obtain the latest and the best from anywhere on the planet. Access to knowledge is now perceived as a basic global right, similar to access to air and water.

To me, what's exciting about the technology-facilitated revolution in learning is its impact on the individual student. Increasingly, learning can be customized inexpensively to meet any ability or learning style. What a far cry from the not-too-distant days when everyone felt obliged to learn identical things in the same way and at the same time as everyone else!

Today's schools are different because they have to meet the evolving needs of a new kind of student. In this issue, read about the innovative ways that Canadian schools are answering these challenges.

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## Alberta School Charts New Course for Teaching and Learning

by Angie Rumpf

**S**troll into the main foyer of Banded Peak School in Bragg Creek, Alberta, and the unique atmosphere immediately strikes you. At first glance, the juxtaposition of vaulted glass ceilings and ceramic tile murals with totem poles and log beams suggests a combination of old and new, traditional and innovative.

Walk to the right or left to the Collaborative Learning Centres — banks of computers located at the junction of corridors leading to the classrooms — and your suspicions are confirmed. There sit Grade 2 students discussing returns on mock stock market investments and planning how to promote and sell a book they've written. Another eight-year-old shares the design elements of her latest project, a story about a dragon — “too obvious on its own” — and a polar bear. She explains the value of white space, and how having too much text on a page would be unappealing to her readers.

Nearby, a Grade 8 student explains how she tracked down and acquired permission to use a copyrighted image on her latest website, an assignment in Canadian history, and how she read and signed the five-page contract with her teacher, Mr. Johnson, as cosigner. She even paid the \$10 fee out of her own pocket, later submitting an expense claim to the school for reimbursement.

Bowled over by the depth and extent of these students' knowledge, it's easy to miss the fact that each and every one of them, regardless of age or gender, is manipulating software with an ease that would make the average business executive envious.

### Without Limits

“The feeling here is that we want to know what happens when kids aren't given boundaries to their learning,” explains co-principal Laurie Bowers. “And, frankly, they're doing so well with it, going so

far beyond what we expected, that they're forcing us to challenge our own notions about teaching and learning.”

The work, according to Bowers, is about transforming teaching and learning. Assignments are long-term and very in-depth — works in progress, if you will. Subjects aren't always segregated. Students make many decisions here about their own learning with help from their teachers, each of whom brings a specific area of expertise to the table. Rather than just handing out information, teachers work side by side with students as they discover new and exciting things about themselves and their world.

True, application-based, self-directed learning isn't necessarily a new concept. But the way that Banded Peak's teachers combine traditional concepts with state-of-the-art technology is, as is the way the students use that technology to bring their ideas to life.

“Technology very beautifully enables project-based or inquiry-based learning,” explains Bowers, “in that it provides access to the wealth of information that's out there. It also allows students to express themselves creatively. It can be used in a linear fashion, but our kids are often multidimensional in constructing their projects. They jump around. They combine and integrate different mediums, such as print, audio and painting or drawing.”

Take, for example, Mary Cameron's Grade 2 class. Since first grade, these students have been working on projects related to a single theme: medieval times. What began as a study of history has now extended into astronomy, astrology and myth. Assignments incorporate math, language and computer skills alongside a growing understanding of historical facts and scientific principles. Last year, for instance, the students designed a castle using mathematical and geometric skills. This year, they have written stories, alone or with a friend, and incorporated these tales into intricate slide presentations.

As another example, consider the work that Banded Peak students do with local not-for-profit organizations. The kids are paired up with a representative from an organization to design a website. “The students essentially become teachers themselves, and it's amazing to watch them work with their partners. They're quite brilliant at it,” muses Bowers. “They know what questions to ask to get to the core of what that person's group is all about, its culture and characteristics. They're really excellent communicators.”

### A Different World

Bowers further notes that the world in which we live and raise children has different expectations than ever before. “The way we work, the way we play, the way we synthesize information is different,” she explains. “That will impact the way we learn and teach.”

After watching students interact with, and even shape, the technology they use every day, Bowers now sees the computer as more than a communications tool. She would argue that the students don't allow technology to limit their imaginations. Rather, they're so immersed in it, so fluent, that in many cases they don't “see” the computer anymore. They simply use it, as they would a pencil or paintbrush, as a means of expression.

## Lifelong Learners

What Banded Peak's teachers are striving to instil in their students and themselves is a lack of fear of trying something new — to have the confidence to jump in and try something they've never seen before, to learn, to conceptualize and to problem solve differently.

In essence, the school is inspiring a passionate commitment to lifelong learning.

"One of the things that we expect of ourselves as teachers," says Bowers, "is that we bring our whole self to this site. Each of us brings our own loves and interests to this place and we have a space where we're asked to deeply explore those. It's not separate from who we are in our homes and in our world. It shapes us, and it shapes our students. It ignites energy and excitement toward learning."

To help foster this sense of ongoing exploration and investigation, Banded Peak makes a point of not chopping up the day. Every class has one teacher and periods aren't segmented. "Our staff help our students to decide what's appropriate and what's needed to achieve the required depth in their studies," Bowers explains. "And that requires a fair amount of time in a day. Students need to be able to get into a task and mess in it. They need to uncover things and reconstruct their understanding of whatever it is they're doing."

Teachers also remain with their class for a full two years. That way, teacher and students alike get to know one another as learners. Every class has at least one Celebration of Learning, a gathering of parents, students and teachers, each year. Together, they celebrate new insights and accomplishments.

## Teachers as Learners

Because really, it's not just the students who are learning.

Banded Peak's renowned Galileo Centre, now a provincial body known as the Galileo Educational Network, works with other schools to challenge notions about teaching and learning. The hope is to revamp education and put Alberta on the map as an educational innovator.

The goal of the Galileo Educational Network is to bring technology into the classroom in a way that enhances and supports lifelong learning among teachers and students alike. Instead of focusing on individual teachers in settings outside of the classroom, Galileo's professional development program proposes to work with a school's entire staff, on their home turf.

The Network also hosts a project teacher or teachers each year out of the Galileo Centre at Banded Peak. Teachers travel to Bragg Creek, where they work for a year with a homeroom class. Part of their time, when not with their students, is devoted to research related to education and learning. The specific topic is of their own choosing.

And what do Banded Peak teachers do for professional development? They use part of the funding currently received from the SchoolNet Network of Innovative Schools to conduct ongoing educational research. Periodic workshops involve all teachers in a discussion of a specific subject and aspects of learning related to that subject. During the first meeting, a committee of teachers is

assigned to engage in an in-depth investigation of a specific issue related to the topic in question. They draw from, and foster relationships with, outside sources, particularly the University of Calgary and other educational bodies. And what they're finding is causing them to constantly redraw the maps traditionally used in teaching and learning.

"As teachers, we're each a part of a community that values this philosophy of lifelong learning," Bowers proudly says. "It's part of who we are as a school," a unique school, at that. Where Banded Peak's initiative will take the educational system, in Alberta and beyond, is anyone's guess. But here's betting the destination will be a thrilling one.

Visit Banded Peak School's website ([www.rockyview.ab.ca/bpeak](http://www.rockyview.ab.ca/bpeak)). To find out more about the Galileo Educational Network, go to [www.galileo.org](http://www.galileo.org)

*Angie Rumpf is a freelance journalist on special assignment with Canada's SchoolNet.*

## The Internet Guide Now Available

*The Internet Guide*, or TIG, is a self-paced Web course for teacher-librarians on basic Internet skills, produced by the Faculty of Information Studies at the University of Toronto.

The instructors, Gwen Harris and Sandra Wood, have been the principal Internet instructors in the Faculty's Continuing Education Program since 1994. Intended for librarians eager to become adept online, TIG provides step-by-step instruction on using browsers, doing research on the Net, e-mailing, participating in chat and discussion groups, downloading software, and much more.

LibraryNet has renewed its contract with the Faculty of Information Studies, giving all Canadian public library staff, public library trustees and school librarians across Canada another year of free access to TIG.

To register, go to LibraryNet ([www.schoolnet.ca/In-rb/e/training/tig.html](http://www.schoolnet.ca/In-rb/e/training/tig.html)).



**A** bison hunt in the back country of the Yukon may seem an unlikely setting for a demonstration of how Grade 6 and 7 students use information and communications technologies (ICT).

But that's exactly what Peter Harms' students from Elijah Smith Elementary School in Whitehorse are doing. This spring, the students are taking part in a hunt. But the project is more than a field trip; the students are also creating a website about the expedition. They're doing extensive research about the wood bison, learning about hunter safety, and discussing ethical issues related to hunting. The results of this work will be posted on the site, along with photos and other documentary evidence of the hunt itself.

This project is just one of many that shows how Yukon schools are getting into the ICT fast lane — teachers, students and administrators have wasted no time in the five years since the Yukon gained Internet access. Every school year, more and more have become enthusiastic about the benefits of integrating ICT into their classrooms.

It's progress Christie Whitley appreciates. When she first became principal of Jack Hulland Elementary School in Whitehorse, she found there were few computers, and the attitudes of staff towards technology varied.

In just three years, however, Jack Hulland Elementary has undergone a transformation. Under Whitley's leadership, the staff has become a technology-friendly community of learners and teachers.

It started when interested teachers set up a technology committee. At the time, Jack Hulland Elementary was undergoing an accreditation process, which identified technology as the primary concern of staff, students and parents. The school came up with a plan to improve the use of technology, and soon the staff and community were embracing the vision of using computers to enhance critical thinking.

Results started to show. More teachers began using the computer lab for project work. Keyboarding skills were added to student report cards. Two teachers successfully completed multimedia projects on Greece and France. A Grade 6 teacher with no computer

## Yukon Schools in Information Highway Fast Lane

by Karen Walker



Teacher Trevor Mead-Robins discusses scanning techniques with Peter Harms' Grade 6-7 class.

experience participated with her class in the Marsville project, which connects eight Yukon schools to NASA via the Internet. (One student had the thrill of posing a question to the astronauts aboard the space shuttle.) The school librarian, who had few computer skills at the time, coordinated the involvement of three Whitehorse schools in the CyberPals Capital Cities project, and took first prize for website design and content.

Two Internet-savvy students created the school's website ([www.yesnet.yk.ca/schools/jackhulland](http://www.yesnet.yk.ca/schools/jackhulland)). These students have since gone on to high school, but other Jack Hulland Elementary students and teachers have continued enhancing and expanding the site.

Last fall, one of the primary goals of the school's plan to improve technology use was reached with the hiring of

Trevor Mead-Robins as a computer support teacher. He divides his time among three Whitehorse schools, working two days a week at Jack Hulland Elementary, two days at Selkirk Elementary and one day at Elijah Smith Elementary. His job is to collaborate with teachers on ways to integrate ICT into the curriculum. Whether it's art, math, social studies or language arts, Mead-Robins has dozens of suggestions for ways in which computers can support student learning and encourage higher level thinking skills.

Among the many projects Mead-Robins has on the go are "virtual tours" of his three schools and their communities ([www.yesnet.yk.ca/schools/projects/vrtour](http://www.yesnet.yk.ca/schools/projects/vrtour)). Students use a digital camera mounted on a tripod to take 12 photographs that capture a full panoramic view of a particular scene. Visitors to the site can manipulate the images with simple click-and-drag techniques to "walk" in a circle and "look" all around. It's even possible to zoom in and out with a few simple keystrokes. (To learn more about this software, visit [www.apple.com/quicktime/qtvr](http://www.apple.com/quicktime/qtvr))

The first on-line tour is a virtual winter walk along the Yukon River. (In one instance, the site notes that the image isn't quite complete because, at  $-30^{\circ}\text{C}$ , it was a little too cold for the digital camera — to say nothing of the fingers and toes of the photographer!) A virtual tour of Selkirk Elementary School will soon be


available and Mead-Robins' two other schools will eventually create their own virtual tours when they have obtained the necessary equipment and software.

Mead-Robins has also helped with the bison hunt website project for Peter Harms' Grade 6 and 7 class.

As for Harms, he is aware of the sensitive nature of the website's subject matter. The wood bison were hunted almost to extinction in most parts of North America. The animals have been successfully re-introduced in the Yukon, which is why the territorial government is allowing a limited hunt for the second year. But Harms knows that there are people in other parts of Canada and the world who do not understand or support the hunting lifestyle, and that putting information about the hunt on the Internet could open up a debate involving himself and his school.

Harms and Mead-Robins have the full support of the school administration and the Yukon Department of Education. They believe the website project provides an opportunity for the students to develop their thinking skills at a higher level. They also feel the project is a splendid, if surprising, example of how information and communications technologies can be integrated into an activity as "untechnological" as a back-country hunting and gathering expedition.



*Karen Walker is a journalist on special assignment with Canada's SchoolNet.*

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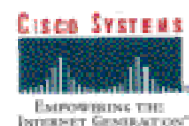
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**Y**ukon Territory is tucked away in the far northwest corner of Canada, a land of rugged mountains, harsh winters and small, remote communities. It is home to Canada's highest peak, Mount Logan (5950 m), and the place that recorded the country's lowest temperature: Snag, where the mercury dropped to -63°C in 1947!

These extremes in both climate and geography pose challenges when it comes to telecommunications and education. But Yukoners are overcoming those challenges.

Soon, the territory will be one of the most connected educational jurisdictions in Canada, according to JoAnn Davidson, Distributed Learning and Educational Technologies Coordinator for the Yukon Department of Education. Starting this fall, rural classrooms will begin receiving pods of computers connected to their school's local area network and, through the department's EduNET wide area network, to the World Wide Web. The project will encourage the integration of information and communications technologies (ICT) into the classroom in every grade. It will also support a distributed learning network to meet the needs of senior high school students in the territory's small, rural communities.

The story of distributed learning in the Yukon parallels that of school jurisdictions in southern Canada. There are, however, important differences. The territory is the size of Spain, but has only 32 000 people living in it. Most of the population is concentrated in the capital, Whitehorse. In the 14 rural schools scattered throughout the territory, there are just 1300 students. Since only half of the rural schools offer courses in the senior grades, many students have to move to Whitehorse to complete high school. Some of those students have difficulty adjusting to the faster pace of the "big city." At the same time, those who stay in their home communities to attend senior high school face a different challenge: programming that is limited in range by the small number of students.

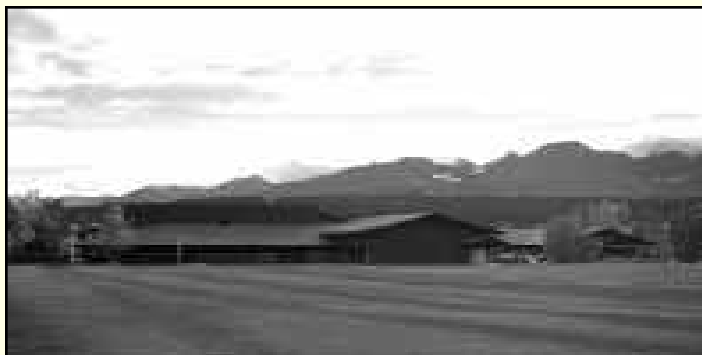
In the past, Yukon educators have depended on paper-based correspondence courses to address the need for more choice in rural high school courses. But since 1995, when the Internet became available to the territory's residents, the Department of Education has been exploring ways to deliver courses online.

It's been a challenging exercise. Rural teachers have been keen to incorporate ICT into their classrooms, but the telecommunications infrastructure has proved slow and unreliable.

That will change due to a \$17-million partnership between the Yukon government and NorthwesTel. Connect Yukon will bring reliable, high-speed Internet service to rural Yukon communities, and will make

## ICT Helps Northern Schools Overcome Many Challenges

by Karen Walker



St. Elias school in Haines Junction, Yukon.

the dream of online course delivery come true. Says Davidson, "Now we'll be able to really capitalize on the expertise of our rural high school teachers. Geography will be a non-issue because the lead teacher for a particular course could be located in any high school in the Yukon."

This model is already being successfully piloted in southern Yukon. The communities of Haines Junction and Watson Lake are 700 km apart, but students in both communities are sharing teachers and other resources while they take Information Technology 11 over the Internet. The course instructor, Darren Hays, is in Haines Junction with 11 students. Teacher-facilitator Rollie Comeau is in Watson Lake with 10 students. The two groups

communicate by e-mail and the occasional teleconference. Comeau supports the students in Watson Lake by providing technical assistance, monitoring attendance, keeping track of academic progress and collaborating with Hays. Connect Yukon will support the expansion of this approach to more Yukon communities.

Meanwhile, teachers have been preparing for the arrival of their classroom computers. The Department of Education has distributed a rubric teachers can use to evaluate their familiarity with and knowledge about information technology. (The rubric was adapted from a model developed by media supervisor Doug Johnson with the Mankato, Minnesota, public schools district. A copy of the rubric is available at [www.yesnet.yk.ca/prodev/rubric.html](http://www.yesnet.yk.ca/prodev/rubric.html)) The main purpose is to determine professional development requirements, but information technology consultant Cameron Good says the rubric has also provided the teachers with a valuable exercise in self-awareness. It has helped them identify their comfort levels, and has made them aware of what they should know to take full advantage of ICT in their classrooms.

Good is now working with Davidson to assess the professional development needs of teachers. In some cases, Good and Davidson are offering face-to-face workshops on particular topics. In other cases, they are directing teachers to online help. But Davidson says the most exciting thing has been identifying the expertise already on staff, and encouraging those teachers to act as mentors or facilitators for their colleagues.

The sky — or, perhaps, cyberspace — is now the limit for Yukon schools, thanks to Connect Yukon.

*Karen Walker is a journalist on special assignment with Canada's SchoolNet.*

**S**choolNet's Network of Innovative Schools ([www.schoolnet.ca/nis-rei](http://www.schoolnet.ca/nis-rei)) welcomed its first 24 members in 1999. Among those primary and secondary schools carefully chosen from across the country for their involvement, leadership and success, École polyvalente Saint-Jérôme ([www.grics.qc.ca/stjerome](http://www.grics.qc.ca/stjerome)), situated north of Montreal, stands out for its revolutionary spirit.

Chantal Desrochers is in charge of the school's multimedia resource centre. As she looks back over the past eight years spent gradually introducing new technology to the school, she no longer has any doubts. She knows that the impossible is possible. "We moved an entire mountain, one stone at a time, to get to where we are today," she remarks, beaming with pride.

The stones were certainly heavy enough! Making the most of information and communications technologies (ICT) meant calling on seasoned technology experts to identify human and material resources requirements, ensuring sound training and long-term support for teachers, and tracking down solid financial partners for the purchase of equipment. The challenge seemed enormous, especially since Desrochers herself knew nothing about technology. Armed with a will of iron, she launched her project after obtaining the support of the school's principal, Gilles Charest, who is known to waste little time with procedural barriers when innovation is needed.

### The First Battle

Resistance began to develop among the teaching and administrative staff. Intimidated by this unknown world of ICT, they did not all share the convictions of the head of multimedia resources about the virtues of technology in teaching. A number of those who were hesitant treated the project dismissively, trying to dissuade Desrochers. "When you initiate change, you are at the front lines of the battle," she admits.

Resistance was legitimized by a series of disruptions that the integration of ICT inevitably caused within the school board and the school. Computerizing all the systems, providing training and adapting teaching methods required widespread restructuring and significant investment. The teachers were required to think and work in new ways. Even course preparation was changing; teamwork now

# École polyvalente Saint-Jérôme:

## *Going to Battle, Returning in Glory*

by Johanne Bédard



Chantal Desrochers reviews students' work at the school's multimedia resource centre.

focused on experimenting with new applications rather than, as before, developing more or less static instruction based on a font of individual knowledge.

Desrochers held firm, establishing a committee charged with carrying out the ICT integration project. Not just anyone could serve on the committee. Teachers, educators, researchers and members of the administration were chosen for their proven credibility in educational matters. Since resistance was still loud and clear, there was no room for mistakes!

### And the Human Barriers Fall

Two school years passed, and the project inched forward. Spurred on by the determination of its leaders, the project's positive effects were soon felt and an increasing

number of people rallied to the cause. Without warning, discreet curiosity gave way to keen, widespread infatuation. Attitudes took a technological shift. "All at once, all the teachers were brimming over with creativity. Everyone wanted to develop educational resources," Desrochers remembers.

Today, thanks to solid partnerships created both inside and outside the community, notably with SchoolNet's Network of Innovative Schools, nearly 500 workstations and a multimedia resource centre are available to the 3000 students. And this still does not meet the ever-growing demand for new technology from the teachers!

### Science Teaching in the Incubator

As part of this proliferation of educational projects, natural science teacher Antoine Déry gathered mathematics and science teachers together to identify obstacles to learning and develop innovative and seamless teaching materials.

Déry's study groups were composed of teachers from École polyvalente Saint-Jérôme, and also from École Lachute, which readily joined forces with Saint-Jérôme. "This partnership prevented the teachers from concentrating solely on their own school. It was a breath of fresh air for both institutions," Déry notes.

### The Lightness of Science

Starting from the statement that one of the difficulties of learning stems from the weightiness of the scientific and mathematical principles taught, Déry and his study groups suggested presenting the

concepts taught to Secondary III, IV and V students as hands-on activities. For example, a student is required to walk in front of a sensor that detects movement, while another student watches as a curve corresponding to the speed of the student's movement is recorded on a graphical calculator. The students are not only studying the physical phenomenon of speed but also, by establishing an average, integrating mathematical concepts. Through these hands-on experiments, the students associate daily reality with a concept of physics that previously had no meaning for them except in books.

It is through sensors or other equipment that the students gather data in the laboratories, record these data with their graphical calculators, and return to class where the data can be processed. The calculators allow students to exchange data and transfer them to a school or home computer (e.g. to a word-processing program for integration into an assignment). In addition to facilitating the acquisition of knowledge, this method saves time. For example, once students know how to design a graph correctly, they can use a computer-created model instead of reproducing it manually each time, and can thereby move on more quickly to other scientific and mathematical experiments.

### Rediscovering the Inner Student

The educational material produced by the research groups will eventually be put on the school's website. The expertise developed at Saint-Jérôme will be passed on to other teachers so they can apply the teaching activities in their own classes. To share expertise more widely, meetings of the school's study groups and the first experiments conducted in class will be recorded on video and also posted on the Internet. Déry expressed his delight at the interest his project has generated: "It is incredible to see that we have used a tool as insignificant as a calculator to gather a group of teachers together to develop new educational material."

It should be said that the enthusiasm felt since the creation of the study groups is exceptional. The teachers are becoming learners once again. They are striving for creativity, shedding new light on concepts and presenting them in an original way. For example, at École polyvalente Saint-Jérôme, it is not unusual to see a teacher stand on a chair and let a ball fall to the ground, while the other teachers analyze the situation. As Desrochers explains, taking part in such a scenario is convincing from the student's perspective. It means that the concepts taught in high school are still used in adult



Antoine Déry helped teachers develop innovative science and math resource materials.

*"It is incredible to see that we have used a tool as insignificant as a calculator to gather a group of teachers together to develop new educational material."*

life and not systematically stored away as soon as studies are over.

### Recommendations to the Ministry

The results of the study groups' work will be assembled in one document and presented to Quebec's Ministry of Education as a series of recommendations. According to Déry, the study's popularity is virtually already assured. "A number of mathematics and science teachers in the school are already asking for training. Our study groups will therefore become mentors."

The school is determined to give concrete expression to its role of mentor. Always anxious to tackle problems head on, it is now waging war against public lack of interest in teaching by

featuring a yearly open house to showcase the students' potential in the areas of culture, sports, leisure activities and science. This invitation to the public allows students to show off their new knowledge to the numerous visitors and, of course, attract new partners.

With the \$10 000 contributed by SchoolNet's Network of Innovative Schools, École polyvalente Saint-Jérôme has been able to add to its equipment, create study groups, develop multiple educational resources, create reliable partners and exert influence that is surprising to say the least. Desrochers talks excitedly about a recent visit from educators who came all the way from Brittany to delve into every single secret of the school's success.

### Quiet Revolution

Each millennium, like each new era, brings its quota of crises, victories and change. Change happens everywhere, but it is in the smaller social units, such as families and schools, that change has the greatest impact. At the head of

these revolutions, there are always people, revolutionaries who initiate change, but not without conflict. At École polyvalente Saint-Jérôme, courage and determination were needed to succeed in breaking through to the information and communications era. Today, Desrochers and her "allies" can enjoy a well-deserved moment of glory, while the protests raised a few years ago have been swallowed up in the teachers' progressive enthusiasm for ICT.

*Johanne Bédard is a freelance writer on special assignment with Canada's SchoolNet*

# Technology Levels the Playing Field

by Sheri Brink



Wayne Langille — bus driver and a computer lab volunteer.

**A**rriving at Newport Station District Elementary School (NSDS) — [www.go.ednet.ns.ca/nsds/kidsnet/](http://www.go.ednet.ns.ca/nsds/kidsnet/) — is as exciting as the first day of school. The sounds of children at work and play amid the serenity of the wooded surroundings is inspiring and it quickly becomes apparent why the innovation inside the walls of this community school has been nationally recognized.

Just as inspiring is the community that has rallied around this school of 125 students up to Grade 6. In many ways, the most notable contribution is that of the school's bus driver, Wayne Langille, who volunteers daily as co-ordinator of the school's computer lab.

With no previous experience with computers, Langille began working in the NSDS computer lab in 1995 after the hours at his full-time job were cut back. "When I first arrived, I didn't even know how to turn a computer on," he recalls. But after a few computer courses, he soon began teaching students how to develop websites, and use a scanner and digital equipment.

At the time, NSDS was already known as technically advanced because it had the first Internet connection of the local schools. Since then, the school's lab has expanded to more than 30 computers with multiple Internet connections. "Providing Internet access supports the whole overarching philosophy of our school — to be excellent in everything we do and to give the students the best we possibly can. We didn't feel there was any other option," says principal Diana MacLean.

## Integrating ICT

This overarching school philosophy has brought staff and students to a new era of information and communications technologies (ICT) integration, as entire classes now use the Internet as a resource. "Students are full of knowledge and they need to be able to explore the world around them — they need a broader area to explore. There is too much knowledge out there not to have access to it," says Judy Maxwell, a Grade 1 and 2 teacher.

However, the thought of young children having access to everything, including inappropriate websites, on the Internet is cause for concern among many parents and teachers. MacLean addresses the issue by educating students on the dangers of the Internet. "At NSDS, we recognize that the Internet and other forms of media can be seductive to children and so we teach media awareness. We want

our students to be wise evaluators of the information they come across, now and when they're older."

## Projects in Progress

Currently, all NSDS students are integrating technology in three ongoing and unique curriculum projects.

- Earning national and provincial acclaim, the bio-diversity and forest regeneration project, Habitat 2000, includes a network of trails around the school on which students learn about bio-diversity. After an attack by spruce bark beetles, trees had to be selectively cut to make the trails safe. The result was a 10-year project on forest regeneration, which spills out of the woods into the computer lab and classroom as students gather details on regrowth and document them using digital technology, as well as scan drawings, do research and add observations to the website.
- With the assistance of resident artists from diverse backgrounds, the Arts Infusion program is introducing art to the curriculum in a new way. Inclusion of artists skilled in the use of visual technology helps students realize the potential of the computer as an artistic medium. Digital image manipulation, 3-D animation and documentary filmmaking are just a few of the areas students are exploring through this program.
- The best ways for NSDS students to star gaze are to go out in the wooded surroundings of the schoolyard and, so it seems, to use *Starry Night*, powerful new astronomy software. And while both are used as a resource in the space and science curriculum at NSDS, *Starry Night* is making astronomy simple for even the youngest students. Students visit the school website daily to find out about upcoming celestial events, and use the software to link directly to key astronomy sites on the Internet and follow the progress of worldwide projects and discoveries as they unfold.

And while this all seems quite ambitious for a small community school, there is much more to come as its dreams and vision for the future keep growing. "We had a vision when we started, along with



Principal Diana MacLean seen with NSDS students viewing online projects.

a spirit of teamwork and determination, which we believe can take you anywhere you want to go,” says MacLean. Having received national recognition, plans are underway to go international through connections with schools in Africa. As NSDS students become more adept at website development, they hope to share their skills with students there. In order to host these international sites, the school plans to fundraise for a school web server by developing commercial sites. And so it’s easy to see that, as MacLean says, “Being small does not get in the way of being good.”

#### Professional Development

With all the opportunities presented to students, teachers are focusing on professional development that will allow them to keep up with the students’ level of knowledge. Aside from courses taught by resident computer expert, Wayne Langille, money provided through the SchoolNet Network of Innovative Schools has been allocated for one half-day a month of training that highlights multimedia in the curriculum. The purchase of a mobile teaching station has enabled teachers to demonstrate programs, Internet sites or projects to an entire class. At NSDS, the integration of ICT is tied to curriculum, rather than to technology, which is helping many teachers overcome their fear of using computers.

#### Challenges

Nonetheless, there are always challenges. As MacLean describes, the poverty that is all too common in rural Nova Scotia creates a “cultural silence” among students. But the school’s theme of social justice is helping to overcome this barrier. “At NSDS, all students have equal access. It doesn’t depend on where you live or how much money you have — everyone has the opportunity to access information and enhance their skills. Technology is an equalizer.” And this theme is carried over into the education of a special needs student who has a computer program that speaks for him as he writes.

So it’s easy to see that nothing is too big for this small school to handle. “Students are realizing the resources that they have access to and it’s amazing the things they’re learning. No topic is too hard for them to tackle and they’re not afraid to research.... It’s no

longer passive learning, but active learning instead,” says Judy Maxwell of her students’ enthusiasm. And their energy is contagious as parents pitch in to fundraise for computers, and community members such as Wayne Langille give freely of their time and effort. “The more I teach, the more I enjoy it, and if I wasn’t working, I’d be here full time. This inspiration and ambition is not about to be contained as students take possession of what they are learning here and take it with them to the future that is theirs.

*Sheri Brink is in public relations at Mount Saint Vincent University in Halifax, and is on special assignment with Canada’s SchoolNet.*

## THE CANCONNECT SKILLS CERTIFICATE:

### *Building Information and Communications Technology Skills in Youth*

Starting next September, a new project will be available to Canadian teachers. The CanConnect Skills Certificate, specifically designed for K-12 learners, will facilitate the acquisition of Internet-related skills. The project was a great success in the schools where it was piloted, and three industry associations support it: the Canadian Advanced Technology Alliance; the Canadian Information Processing Society; and the Information Technology Association of Canada.

Using a generic skills matrix, learners can acquire a number of skills, ranging from learning how to send an e-mail to building a Web page! Throughout the school year, students have an opportunity to progress through four levels of performance, increasing their technical knowledge as they go.

The certificate project may be part of regular class work, a lunch-hour program or a before-school club. It can also be approached as a class project or students can tackle it individually.

For additional information about the project, or to find out how to get involved, visit the project website (<http://canconnect.ic.gc.ca/certificate>).

# Coming Soon to a School Parking Lot Near You!

by Jitka Licenik

**H**ave you ever seen a LAN Van? If you live in rural Saskatchewan, chances are you'll be seeing one soon. A mobile computer-training lab is making its way across the province to provide accessible, convenient and cost-effective curriculum and technology training to teachers and students. But what exactly is a mobile computer-training lab?

In an innovative attempt to bridge the gap between rural and urban schools' access to information and communication technologies (ICT), the Learning Technology Unit of Saskatchewan, together with SchoolNet's (www.schoolnet.ca) and the Saskatchewan Communications Foundation, have developed a new training initiative for rural communities in Saskatchewan.

A van equipped with DirecPC, a dedicated proxy server, eight laptop computers with multimedia capabilities connected through a wireless local area network (LAN), a projector and high-speed Internet access is giving teachers and students in remote locations the opportunity to increase their knowledge and comfort with computers and the Internet.

"We realize that parents want to feel their children's skills are competitive with those of their peers in the cities," says Sandra Pearson, Principal of Clavet School in Clavet, Saskatchewan.

Since the launch of the lab in October 1999 at Clavet School, it has been on-site in dozens of locations throughout the province to train teachers during in-service sessions.

Bob Schad, Director of the Learning Technology Unit, explains: "We don't teach technology; we set a learning objective and give instructions as needed. Teachers go to in-service sessions to see how to make learning better, how to integrate technology into what they are already doing."

Besides providing state-of-the-art computer and Internet training to the education community, other benefits of the computer-training van include lower travel costs and greater convenience for busy teachers. A mobile lab also frees up computer lab time for students, which would otherwise have to be used for training teachers, and is more cost-effective than constructing permanent training facilities would be. But perhaps the most important advantage is one of equity. Teachers in rural Saskatchewan schools, as with their urban counterparts, now have access to the training they need to prepare their students for life in the knowledge-based economy.

"As information technology skills have become an integral part of

university life as well as the workplace, more and more of today's businesses look for computer skills," adds Pearson. This project ensures that students in rural communities are not left behind.

In the first few months of the project are proving to be a big success; the van is currently in high demand. With similar training programs likely to be popping up across Canada, don't be too surprised if you see a

LAN van in your community soon.

For more information, check out the mobile computer-training lab home page ([www.sasked.gov.sk.ca/curr\\_inst/itech/lanvan/index.html](http://www.sasked.gov.sk.ca/curr_inst/itech/lanvan/index.html)).

*Jitka Licenik studies communications at Simon Fraser University in Burnaby, B.C. She is on special assignment with Canada's SchoolNet.*



# FIVE STEPS TO SUCCESS

## How to Make Your ICT Dreams Come to Life

by Gail Singer



Stock photo provided by SchoolNet

**A**t one time, the staff at Earl Grey School in Winnipeg ([www.wsd1.org/earlgrey/](http://www.wsd1.org/earlgrey/)) could only dream of how an information and communications technologies (ICT) learning environment would help their students. However, they were given the opportunity to realize this dream, but it meant hard work on everyone's part. Below, Gail Singer, Principal of Earl Grey, outlines how she and her staff brought ICT to life in their school — and how you can too.

Students become highly motivated if they can acquire computer skills while learning the three Rs. At Earl Grey, we are achieving this through a partnership in which technology support persons and classroom teachers enhance learning through technology.

### Establish a Vision

To provide our students with the technology skills they need, it was necessary for us to apply for a federal grant from Human Resources Development Canada. This grant would enable us to provide our staff with professional development in technology.

And so together we wrote a vision statement, each person taking a section after brainstorming the content. As a team, we dreamt about what would be good pedagogically for our students in the program that would specialize in math, science and technology, and more specifically, for the all-girls program that we began about five

years ago. The result was a two-year support staff position that would help teachers become self-sufficient in technology.

### Professional Development is Key

We have always included a significant professional development component so that everyone can benefit from the funding. Although they have very little time to start with, teachers have been able to get some release time to learn new skills that are very strategic to their teaching.

### Involve Everyone

While some might see resistance to change, all our teachers wanted a part of the technology bandwagon once it got started. At Earl Grey, we realize that everyone has something of value to contribute. For instance, teachers of grades 4 to 6 promised to do one hour of both math and science per cycle using technology as part of our Hewlett-Packard grant. Both our divisional computer consultant and our technology support teacher helped them to find ideas and illustrated how this could be done.

### Learn from Your Students

Gradually, we are becoming more comfortable with technology. While we all learn at different rates, we learn a lot through practice, as well as from our students as they love teaching staff members what they know. For example, a shy computer whiz in

Grade 6 taught me how to make brochures using a publishing program. We believe in mentoring at our school and it works!

### Catch the Spirit and Never Look Back

While we still rely on grants that quickly run out, we are so much further advanced than we were even three months ago. And the reason for it is that we share a spirit of wanting to learn more. We give it to the students and we get it from them. We are lifelong learners. The spirit is contagious and is moving us forward!

*Gail Singer is Principal of Earl Grey School in Winnipeg, Manitoba.*

## ADVERTISERS' INDEX

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**T**oday's teachers in all fields are faced with new and different challenges as information technology plays an ever-greater role in education.

On the one hand, educators have the opportunity to tap into an extraordinary pool of online materials about Canada's heritage, peoples, geography, arts and sciences — more information than could ever be housed in a school or local library. On the other hand, information on the Internet is often chaotic, unstructured and difficult to locate. The result is that many teachers are still reluctant to take advantage of the Internet and the wealth of resources it provides. If educators can find reliable sources, however, they have the chance to enhance their teaching with materials that can bring Canada to their classroom as never before.

"Kids are beginning to spend more time, both at school and at home, surfing the Net these days. However, before teachers will begin to integrate the Internet into their classrooms on a regular basis, they need to be provided with resources they can trust and have confidence in," says Harry Adam, Principal at J. W. Inglis Elementary School in Lumby, British Columbia. "In our school, one of the online resources that is starting to be used effectively is Canada's Digital Collections," says Adam. "It is a portal to over 350 websites created from holdings of national, provincial and local organizations. Of particular interest to students at our school is our very own *History of Lumby: From Grassroots to Treetops* digital collection, which brings alive the history and people of our community!"

Digital Collections (<http://collections.ic.gc.ca>) is a federal youth employment program created in 1996 to provide multimedia work experience to Canadians between 15 and 30 years of age. Since then, young Canadians have been central to preserving their country's achievements, stories and spirit on the Internet, and the results are impressive: more than 2300 young people have participated in projects, which together have produced one of the largest sources of Canadian content on the Information Highway.

Teachers are realizing the potential of Canada's Digital Collections for educational purposes. In British Columbia, websites, such as *The British Columbia Archives Presents The Amazing Time Machine* and *Emily Carr: At Home and at Work*, are gaining widespread recognition

# Bringing Canada to Your Classroom

by Jovan Matic



as learning resources by the B.C. Ministry of Education, Yahoo Canada and teachers such as Harry Adam. In December 1999, the B.C. Ministry of Education took the first step in delivering the provincially run B.C. Heritage Web Sites program, modelled after Canada's Digital Collections. One of the program's main goals is to develop educational websites about British Columbia's history that are endorsed by the provincial Ministry of Education and used in classes as teaching resources.

In Prince Edward Island, websites such as *The Potato: Then and Now* and *Jack Turner's War* are gaining similar popularity. National institutions such as the National Archives of Canada, the Department of Canadian Heritage and other holders of Canada's treasures have also contributed by digitiz-

ing some of their most popular collections through the Digital Collections program.

Building the momentum of Digital Collections are university students from faculties of education across Canada who have decided to make teaching easier. For example, Eli Funston, a graduate from Queen's University in Kingston, Ontario, and now a teacher at Thousand Islands Secondary School in Brockville, Ontario, was part of a team in 1999 that added a curriculum element to Digital Collections. His team designed units containing teaching modules, abstracts, evaluation tools and recommendations for related activities based on selected collections.

"What you have is a complete package of information that teachers pull down from the Internet and use in the classroom," says Funston. "Teachers are overburdened and pressed for time as it is these days. The more effective and efficient they can make their job, the better. Add these units to the growing list of digital collections that have educational elements built in already and you've got a massive set of resources that is 100 percent Canadian."

Once empowered with the knowledge and skills to use the Internet effectively, teachers and students can take a virtual tour across Canada to bring important elements of the country right to their desks. In Niagara-on-the-Lake, Ontario, Tom MacDonald's Grade 10 music class is learning about Glenn Gould, the world-renowned pianist. To engage the class, MacDonald uses a host of



tools, including a wide variety of books and audio recordings from the school and public library. He also uses Canada's Digital Collections.

"Through the Canada's Digital Collections website, I have access to an extensive exhibit of Gould's written work, recordings and other fascinating background information I could otherwise have viewed only in Ottawa at the National Library of Canada where Gould's work is held," says MacDonald. "Now I can bring the National Library to my classroom."

Teachers who are savvy about using computer-based resources can achieve new levels of excellence in education. And teachers should remember that a computer in the classroom is not necessary to take advantage of many of the resources available through Canada's Digital Collections. Materials can be downloaded and printed for later classroom use. In whatever form, Digital Collections can make learning about Canada a lot more exciting and challenging for students of all levels — and a whole lot easier for teachers in search of new and exciting teaching resources.

With more curriculum units and activities on the way and a host of provincially endorsed websites, Canada's Digital Collections is fast

becoming teachers' first choice for SchoolNet GrassRoots and other classroom projects. Visit the "Teachers' Resources" section of the site (<http://collections.ic.gc.ca/E/Teaching.asp>) or check out some helpful ideas listed below to get your class engaged in a Canada's Digital Collections project today!

### Try These Classroom Projects

Create a GrassRoots project: [www.schoolnet.ca/grassroots](http://www.schoolnet.ca/grassroots)

Create a cross-Canada quiz using Digital Collections as the answers: [http://collections.ic.gc.ca/heirloom\\_series](http://collections.ic.gc.ca/heirloom_series)

Submit an application to develop your own digital collection and give your students a chance to learn new multimedia skills: <http://collections.ic.gc.ca/E/program.asp>

Try out a curriculum unit, such as Cultural Diversity, Flight or Canadian Women Artists (<http://collections.ic.gc.ca/curriculum>) or Traditional Dances of First Nations (<http://collections.ic.gc.ca/sifc2/dances-i.htm>).

*Jovan Matic is a Communications Officer with Canada's Digital Collections program.*

## How Connected are We?

Last year, SchoolNet celebrated its success in helping Canada become the first country in the world to connect its public schools and libraries to the Information Highway. The next step is to bring connectivity to Canada's classrooms.

To measure the level of connectivity in public schools, SchoolNet launched an online survey of Canadian school boards, districts and divisions in November 1999. So far, 141 (about 30 percent) have responded from all provinces and territories. They report that 142 632 (89 percent) computers in their schools are connected to the Internet. Of these, 56 percent are located in computer labs, 35 percent in classrooms and 9 percent in libraries. They

also report that 53 percent of their schools access the Internet via the school board's network, 27 percent via a standard 56 kbps modem, 11 percent via the provincial education network and 9 percent via satellite.

As connectivity is extended to the classroom, future surveys will play an important role in measuring and maintaining Canada's leadership position in educational networking. SchoolNet and its provincial and territorial partners are working closely to complete the survey in the coming months.

For more on the survey, look on the SchoolNet National Advisory Board section of SchoolNet ([www.schoolnet.ca/snab](http://www.schoolnet.ca/snab)).

# Social Issues and the Internet

by Ken Stief

**N**etworked computers provide K–12 students and teachers with unprecedented access to content and opportunities for communication. However, this access raises important social issues related to responsible, ethical and safe Information Highway use. As the Internet, along with students' familiarity with and access to it, continues to grow, SchoolNet and its partners in government, business, homes and schools must work together to balance the benefits of free access to online information with protecting children from inappropriate content and exploitation.

Below are some issues and questions to consider when planning and assessing the use of technology in the classroom, as well as some relevant websites that may provide some answers.

## Content Quality and Appropriateness

Students need access to quality content in classroom learnware and on the Internet.

- Does the content match the learning needs and practices in the school?
- Does it comply with curriculum guidelines?
- Is it appropriate, inclusive, current and relevant?

## Intellectual Property and Copyright

It is difficult to enforce copyright laws in the Internet environment.

- Are classroom practices consistent with current copyright law?
- Does the school promote understanding of laws, policies and guidelines?

See the Canadian Educational Policy and Administration Network website ([www.cepan.ca/rr.htm](http://www.cepan.ca/rr.htm), click on "Copyright" under Operations and Administration), *Strategis* (<http://strategis.ic.gc.ca/SSG/ip00001e.html>) or the Council of Ministers of Education Canada site ([www.cmec.ca/copyright/copyright.htm](http://www.cmec.ca/copyright/copyright.htm)) for more information.

## Privacy Protection

Schools need to protect the privacy of students and teachers.

- Do acceptable-use policies include ways to manage online behaviour and promote respect for privacy of all online users?
- Are technological safeguards considered, such as electronic surveillance, caching systems and personal portals in educational networks?

- Are procedures for storing student records and personal information electronically secure?

See *Strategis* (<http://e-com.ic.gc.ca/english/privacy/632d1.html>) or the Media Awareness Network ([www.media-awareness.ca/eng/issues/priv/privacy.html](http://www.media-awareness.ca/eng/issues/priv/privacy.html)) for more on this subject.

## Language and Culture

English is the predominant language on the Internet.

- Do students have access to inclusive educational resources that reflect Canada's diversity and identity?
- How can schools and their partners promote and contribute to the development of content reflecting both official languages and the Aboriginal people of Canada?

Check out Canada's Digital Collections (<http://collections.ic.gc.ca>) or SchoolNet's Learning Resources ([www.schoolnet.ca/home/e/resources](http://www.schoolnet.ca/home/e/resources)) to find out more.

## Supporting Special Needs Learners

Networked technology increases opportunities for special needs learners.

- How is technology used to improve access to learning for special needs students?
- Does the school's technology enable regular communication among teachers, parents and child care specialists to co-ordinate their support?
- Do teachers and students have on-line access to learning resources designed for special needs students?

To find out more, go to Special Needs Education ([www.schoolnet.ca/sne](http://www.schoolnet.ca/sne)) or The Special Needs Opportunity Windows (<http://snow.utoronto.ca>).

## Gender Equity

Female students use technology less often than males do, although the Internet seems better matched to female's learning styles.

- Are female students encouraged to use technology in their learning?
- What gender-sensitive resources are available to increase female students' interest in technology for learning or as a possible career?

## Responsible Internet Use

Students sometimes use the Internet irresponsibly or access inappropriate materials accidentally or on purpose.

- Does the school follow acceptable-use policies to manage appropriate access and ensure responsible use of technology?
- Do students, teachers and parents have opportunities to discuss media awareness as part of the school's curriculum?

Stellar ([www.stellar.nf.ca/sssp/atschool.html](http://www.stellar.nf.ca/sssp/atschool.html)) contains helpful information on this subject.

Business-Education Partnerships  
The Conference Board of Canada and the Canadian Teachers Federation have established guidelines to help schools and businesses develop ethical and effective partnerships.

□ Is the school developing partnerships consistent with these guidelines?

Take a look at the Conference Board of Canada website ([www2.conferenceboard.ca](http://www2.conferenceboard.ca)) or the Canadian Teachers Federation site ([www.ctf-fce.ca](http://www.ctf-fce.ca)).

The Internet is a wonderful tool for today's imaginative and innovative students. By keeping it safe and educating students and teachers, SchoolNet and its partners are helping our youth

secure a future with limitless possibilities. Visit Canada's SchoolNet ([www.schoolnet.ca](http://www.schoolnet.ca)) for a copy of the full research report on social issues and the Internet

*Ken Stief, President of K&V Stief Associates, is on special assignment with Canada's SchoolNet.*

## Free Software!

As part of its commitment to help teachers and students develop information technology skills through SchoolNet's GrassRoots Program, Microsoft Canada is proud to offer free software, such as Front Page 2000 or Encarta Reference Suite 99, to teachers whose proposals have been approved for GrassRoots Program funding.

For more information about the SchoolNet GrassRoots Program and this software incentive, check out the GrassRoots Program website:

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



# LIVE THE PAST. BUILD THE FUTURE

## THE EVOLUTION OF HUMAN RIGHTS IN CANADA

An exciting new Web site, designed for youth, traces the development of human rights in Canada during the 20th Century.

The home page invites visitors to become time travelers – and challenges their knowledge.

A Guide, for teachers, librarians and other educators is available on the site.

[www.canada.justice.gc.ca](http://www.canada.justice.gc.ca)



**I**n schools across Canada, innovative programs are demonstrating how technology can greatly enhance student learning. Unfortunately, issues such as access, connectivity, lack of content and technical support continue to be obstacles. It is clear, however, that effective professional development for teachers is key to widespread and effective integration of technology in classrooms. Over the past few years, the primary focus of professional development programs for teachers has shifted from learning technology skills to how technology can be used as a tool to enhance teaching and learning.

Reports on reviews of professional development supported by SchoolNet and its partners reveal a variety of approaches. Here are some examples.

**Action Research.** Teachers are teamed with faculty of education staff and students, sometimes as part of accreditation courses, to investigate new models for information and communications technologies and share their findings in an action research project (e.g. Avalon West School District and Memorial University in Newfoundland).

**Cascading.** Lead teachers from a group of schools receive intensive training and become part of an ongoing professional development network enabling them to return to their schools to provide ongoing on-site support to their colleagues (e.g. Telus Learning Connection, Alberta; [www.2learn.ca/](http://www.2learn.ca/)).

**Collaborative Learning.** Teachers and student teachers develop their information and communications technologies skills and knowledge by working with colleagues and students on online collaborative projects (e.g. École secondaire les Compagnons-de-Cartier, Ste-Foy, Quebec; [www.escc.sainte-foy.qc.ca/](http://www.escc.sainte-foy.qc.ca/)).

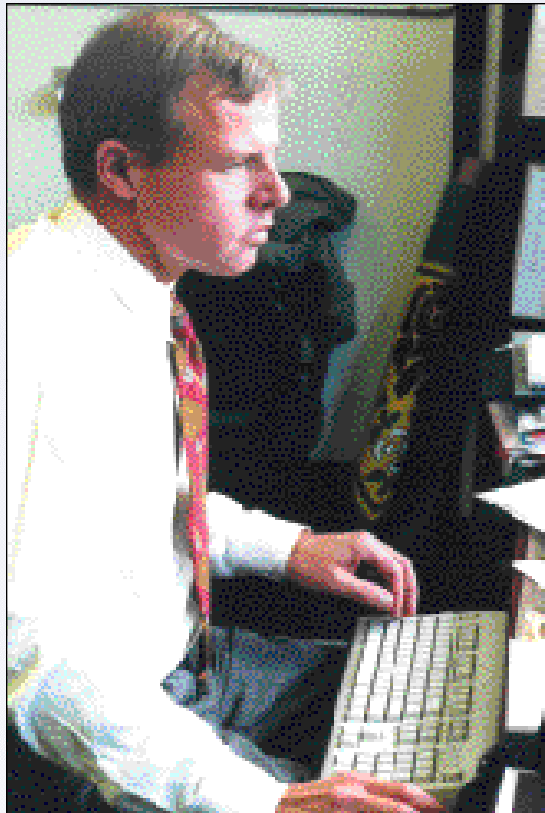
**Mentoring.** A central team of highly skilled and knowledgeable mentors work directly with teachers in classrooms and follow up with ongoing online mentoring (e.g. Teacher Mentoring Project, New Brunswick).

**Networks.** A virtual centre is a place for teachers to access digital resources and to participate in professional dialogue (e.g. Education Network of Ontario; [www.enoreo.on.ca/](http://www.enoreo.on.ca/)).

**Teacher Centre.** A resource centre provides workshops modeling best practices, learning resources and access to consultants' expertise. The centre is often complemented by an online

## Research Sheds Light on Professional Development Initiatives

by Ken Stief



Stock photo provided by SchoolNet.

component (e.g. Department of Education, Prince Edward Island; [www2.gov.pe.ca/educ/resources/index.asp](http://www2.gov.pe.ca/educ/resources/index.asp)).

Whatever the approach, professional development programs are more likely to succeed if they include features such as teachers being involved in designing their own learning and various types of interaction and learning styles (face-to-face workshops, on-line discussion and mentoring, multimedia presentations) that model effective classroom instruction. It is important that the objectives for professional development programs are achievable given the access to technology and support available in the teachers' classrooms and in school laboratories. Programs must also feature opportunities for on-line interaction and collaboration among teachers as part of a professional development network to explore questions and to share resources and ideas, and access to expertise, information and resources consistent with the required curriculum.

Development of a school and school district culture that supports innovation and change is crucial, as are partnerships and collaboration among schools, school districts and faculties of education to share resources and build a critical mass of participants. The school, school district and community must also be committed to technology as a long-term priority.

Finally, good professional development programs must include long-term transitional approaches that feature a number and variety of follow-up activities and ongoing monitoring and assessment of success.

Ongoing professional development of teachers is important as technology and innovation change the way Canadians learn. These initiatives help ensure that students have the instruction and guidance they need to acquire the skills that will push Canada forward in the 21st century.

For the full report on professional development or more information on Canada's SchoolNet, visit [www.schoolnet.ca](http://www.schoolnet.ca)

*Ken Stief, President of K&V Stief Associates, is on special assignment with Canada's SchoolNet.*

## SchoolNet News Network

Imagine getting advice on your writing from professionals such as Lawrence Surtees of *The Globe and Mail*, Rebeca Rankin of MuchMusic, and news directors, freelance writers, journalists, broadcasters or journalism students. For some Canadian students whose schools take part in the SchoolNet News Network (*SNN*: [www.stennet.nf.ca/snn](http://www.stennet.nf.ca/snn)), these pros are their mentors.

Larry Danielson, English teacher at Garden Valley Collegiate in Winkler, Manitoba, uses SNN as a tool to teach journalism in his Grade 12 classes, but also offers it as an extracurricular club. Students write news stories for publication on the SNN website and when they need help are matched up with a mentor.

“Those students who would like to have a mentor can sign up for one on the SNN website,” explains Danielson. Students and mentors use e-mail to forward articles and suggestions back and forth until the student is happy with the copy.

Jen Wiebe is a Grade 12 student at Garden Valley Collegiate who has been involved with SNN for more than a year. She went from being an assistant editor to editor-in-chief, and is now news editor. She has found her experience with the mentoring program through SNN beneficial.

“My mentor has passed on some very valuable information — different things about structure, mechanics, style and tone,” she says. “A mentor has experience that’s invaluable. You can ask anything, and you’ll get an answer.”

An added bonus in Danielson’s class is that the learning circle closes. His students share the feedback they receive from their mentors with fellow classmates and their teacher.

Although no teachers have asked to be paired up with mentors themselves, according to Beth Ryan, SNN Coordinator, there are other opportunities for teachers.

“We have a listserv so that teachers, advisors and mentors can help each other,” she says. “If I get an idea from someone else I just put it on the site. The site sort of acts as a clearinghouse for ideas.”

As a teacher, Danielson has found that participating in SNN is a great learning experience for himself as well as for his students.

“It has been a great privilege to learn more about journalism from such advisers as Art Rockwood (CBC broadcaster), Gerry Phelan (VOCM Radio) and Chris Dornan (Carleton School of Journalism). And from the students I’ve gained a better sense of issues important to Canadian students other than those I teach.”



## Look Through This Window!

CanLearn Interactive ([www.canlearn.ca](http://www.canlearn.ca)) is a single-window access point for the interactive tools and resources your students need to plan their learning goals, explore career opportunities and find the funding they’ll need to achieve their dreams.

Teachers can use CanLearn to catch up on the latest learning news and events and chat with other education professionals about what matters.

Check out [www.canlearn.ca](http://www.canlearn.ca) today!

## Prairie Journey 2000

Three Manitoba teachers visited schools across the Prairies May 15 to 20, sharing resources and experiences as they went, and with 30 students in tow!

The group travelled by bus from Winnipeg to various provincial schools, and then took the train to Calgary. The students and teachers collected information about the schools they visited, performed cultural vignettes and displayed the Prairie Journey Quilt.

A video crew captured the experience, and a website tracked the progress of the group before and during the trip. A student-produced CD-ROM will feature the resources collected on the trip.

For more information, visit [www.wsd1.org/pj2k](http://www.wsd1.org/pj2k) or e-mail Rob Fiola ([rfiola@mbnet.mb.ca](mailto:rfiola@mbnet.mb.ca)).

# Toronto Board Wins with Windows 2000

*Editorial Sponsorship*

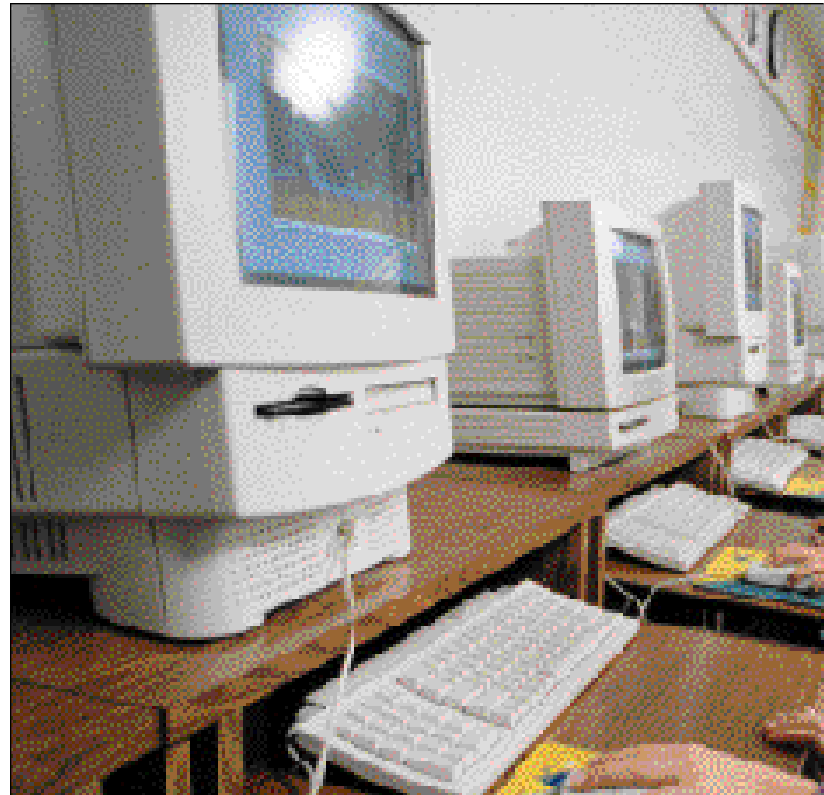
**B**rian Morrison is an extremely brave and committed fellow. Morrison, who is Coordinator of Systems Integration and Change Management for the Toronto District School Board, was charged with the task of integrating and standardizing computer systems for seven former school boards now merged into one massive whole. “We are creating a new environment for the board,” he says rather modestly.

But it begs the question... how do you take seven distinct school boards and mesh them together? And once having accomplished this, how do you integrate the back-end and front-end systems so they work seamlessly while serving a far-flung user base? Now imagine that this new entity, now known to the world as the Toronto District School Board, consists of 300 000 students, 25 000 faculty, staff and administrators in 600 offices and schools with a network of 60 000 desktop computers. Not only that, the board is running seven separate networks, a legacy left over from the pre-amalgamation days. Just how large a task is this? The simple answer is... gargantuan. Searching for the ideal solution brought the board to Windows 2000.

It is a good thing that Morrison is affable and laughs easily. The task before him could reduce the best of us to tears. Take for example the many individual pieces of software running in schools across a range of platforms and a host of applications. Morrison and his team are in the midst of testing 2500 software programs used from kindergarten up to OAC to ensure they will work with Windows 2000. In addition, 50 percent of the board’s desktop machines are Macintosh. “We found a piece of software to make it work as long as they are using OS 7.6 or up,” says Morrison smoothly.

Why is he so calm? It has to do with the high degree of reliability the board’s implementation team found in Windows 2000. Ironically, the board wasn’t even considering Windows 2000 originally because the product hadn’t been launched when the specifications for the

system integration were written. Microsoft then came to the board and asked if they would consider using Windows 2000. At first, the board said no. Morrison and his team were a bit gun-shy. After all, it was a brand-new product and they didn’t want to be the guinea pigs working out all the bugs and dealing with those kinds of headaches. In the end, however, Morrison had heard from third-party sources that Windows 2000 was reliable, so they

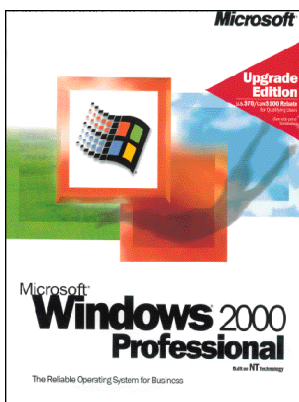


consulted further. “After four weeks of testing, we switched to Windows 2000,” Morrison says, citing the product’s ease of use and its better functionality and reliability as the main reasons. Morrison goes further: “We hammered the heck out of these systems by running them to the limit and then doubling the load — and we still haven’t crashed one of these boxes, even after running it at 100 percent for 96 hours straight.”

The project team consisted of a core group of just 12 people from different areas within the board. Other specialists were brought in as needed. None of the team members had ever worked together before and never on a project of this magnitude. Enthusiasm didn’t seem to be a problem. “When you have technical staff and you give them a new product, it doesn’t take much to get them motivated,” Morrison says. Each team member may have had a varied background and experience but, according to Morrison, each brought valuable knowledge to the group, which was important given the scope of the project and the level of testing required.

The degree of rigour involved with the testing is essential because of the way the system will be used once it is rolled out into schools across the board. Says Morrison: “Kids like to do things on the edge and so they will try anything. When they’re doing projects, they push the system to its limits and then try to exceed those limitations to get more out of it. These demands push us to provide the latest technology around, in order to ensure that our students have the best learning environment possible.”

The project is being rolled out in three major phases. The first phase is to roll out the new platform to the board’s server base.





Phase two involves providing Windows 2000 to the board's administrative sites and the last phase, and the most complex, involves making Windows 2000 available to classrooms in every school. Phases one and two have been completed. As part of the administrative phase, Windows 2000 is available in 14 buildings and accessed by some 2000 users, a large enough network by most standards. Within the next 12 months, phase three will unfold. Schools and board offices will still run the same applications they were running under the old system: a payroll system, one for finance and another that deals specifically with students. The difference this time around is that Morrison and his team are building what he calls a new "image" for each and every desktop.

That means, under Windows 2000, each and every user on each and every desktop will see the same thing. It is this new image that is being tested and will be rolled out beginning in Fall 2000 to all 600 schools within the board.

Other attractive characteristics of Windows 2000 are its scalability and functionality. Windows 2000 was designed to handle the capabilities of a rapidly expanding network. "With 300 000 users, it [Windows 2000] certainly offers us the scalability necessary to do the job right," says Morrison. The degree of functionality also gives the board flexibility and control. Take password security, for instance. Before, a user was given either all privileges associated with password security or none at all. The system didn't have the range of options built in. Now, a user can be given the degree of control he or she needs to do his or her job. And because Windows 2000 has this type of functionality built into a range of its features, Morrison estimates there will be

substantial savings for the board down the road. "We won't have to buy third-party software to go along with it." And there's more. "School boards get a tremendous discount from Microsoft and we get that discount for Windows 2000 too."

Ultimately, Morrison keeps coming back to the reliability of the product and how smooth the testing and implementation phases have gone. When queried specifically about any challenges encountered in the process, he is left grasping for examples. "I didn't have any big issues," he says. "If I had been asked six months earlier about that, I would have said I was nuts." For now, Morrison and his team are preparing the roll-out that will have an impact on virtually every classroom in the city of Toronto. They are relaxed, calm and confident.

Toronto District School Board was able to increase cost savings by purchasing a new licensing offer from Microsoft called School Agreement.

### Do You Know School Agreement?

School boards across the country have an additional opportunity to realize savings. Microsoft has introduced its School Agreement, which acts as an annual licensing program for schools. The program is both simple and flexible. School Agreement came about as a result of direct consultation and discussion with educators.

The benefits this program offers are: one convenient annual payment for software; you run the most current version of licensed software; and it's an easy way to ensure all of a school's or board's computers are compliant.

Computers covered under School Agreement include all Pentium, Power Macs and iMacs, plus a number of i286, i386 and i486 machines, and other UNIX-based or Apple devices adding up to a minimum number of 100 machines.

Here's how it might work. If your school has 500 Pentiums, 200 Power Macs, 200 i386 machines and 200 Windows terminals, 700 of the eligible machines (Pentiums and PowerMacs) are included in the count. A selection of the other machines can then be chosen, for example 100 i386 machines and 50 Windows terminals. That adds up to 850 machines in total. The School Agreement is a 12-month subscription that provides the rights to the software plus delivers all upgrades and downgrades throughout the term of the agreement. Once a school has 100 machines as the minimum threshold for the program, pricing is tiered according to the total number of machines in use. The agreement also covers a wide range of applications and software, including Microsoft Office, Works, Encarta, Visual Studio, Office Starts Here, Project and Front Page, to name just some.

More affordable than buying individual pieces of software, School Agreement offers flexibility in licensing and pricing for schools. For more information, please see the primary and secondary education Web site at: [www.microsoft.com/canada/education/k\\_12.htm](http://www.microsoft.com/canada/education/k_12.htm)



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