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Welcome to the beginning of the third year of the new century. Just to confuse matters somewhat, we've moved things around in our editorial schedule.

Normally, we focus on educational technology in the March/April issue. This year, we've swapped March/April and January/February—so this focused theme will be arriving a bit earlier this year.

In this issue, we have the Tenth Annual Technology Supplement, which, as you should already know, is a listing of new products and services that, hopefully, will be of some value to you in your classrooms. We are always careful to say that the listings do not constitute an endorsement of any kind, merely a narrative description that provides enough information for you to decide whether you wish to investigate any further.

In addition, we shall be talking with award-winning teachers from across the country about how they implement technology in the classroom. What has worked for them? What lessons have they learned? What have been the benefits and/or the challenges inherent in the process? You shall find out.

As a complement, our Futures columnist, Richard Worzel, writes of the perils of using computer technology ineffectively. That, without the proper integration of technology, the effects could be detrimental to a student's development. In that case, it may be wiser to junk the computers and apply the funds to more resources, teachers, etc.

CURRICULA explores the exciting idea of creating your own virtual museum. This is an opportunity for teachers and students to employ technology in a deep learning context. The lesson plan will lead you and your students through that process step-by-step. You will also find the Computer review and an assessment of educational Web sites in our Web Stuff column.

Saluons l'arrivée de la troisième année du nouveau siècle. Pour compliquer un peu les choses, nous avons chamboulé notre calendrier de rédaction.

Habituellement, le numéro de mars-avril porte sur la technologie éducative. Cette année, c'est le numéro de janvier-février qui y sera consacré. C'est donc un peu plus tôt que d'habitude.

Le présent numéro renferme le dixième supplément annuel sur la technologie. Il s'agit, comme vous devez le savoir, d'une liste des nouveaux produits et services, qui, nous l'espérons, pourraient vous être utiles en classe. Nous prenons toujours soin de préciser que la publication de cette liste ne constitue en aucun cas une approbation de son contenu, mais qu'elle vise à vous fournir une description vous permettant de voir si un produit ou un service pourrait vous intéresser.

En outre, nous présentons des entretiens réalisés avec des enseignants de partout au pays qui ont reçu des prix pour avoir introduit la technologie en classe. Comment ont-ils procédé, quelles solutions fonctionnent bien? Quelles leçons en ont-ils tirées? Quels avantages en ont-ils retirés et à quelles difficultés se sont-ils heurtés? Ils vous le diront eux-mêmes.

À titre de complément, Richard Worzel, qui signe la chronique Le Futur, nous parle des risques que présente un usage inconsidéré des ordinateurs. Si la technologie n'est pas bien intégrée à l'enseignement, elle pourrait avoir une incidence néfaste sur les progrès de l'élève. Dans ce cas, il est peut-être préférable de laisser tomber les ordinateurs et de consacrer les fonds disponibles à un accroissement des ressources, du nombre d'enseignants, etc.

La rubrique CURRICULA porte sur un projet captivant : la création de votre propre musée virtuel. Il s'agit d'une occasion pour les enseignants et les élèves d'utiliser la technologie pour approfondir leurs connaissances. Le plan de leçon vous guidera pas à pas, vous et vos élèves, dans ce projet. Vous trouverez également dans ces pages un article passant en revue les ordinateurs sur le marché et, à la chronique Web Stuff, une évaluation des sites Web éducatifs. 🐛

Wili Liberman

Next Issue

- *Special Focus on Child Protection Issues*
- *Citizenship and Civic Responsibility*
- *Futures, Web Stuff, Computers and more*

We wish to gratefully acknowledge the assistance of the Canada Magazine Fund.

TEACH

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TEACH is published by 1454119 Ontario Ltd. Printed in Canada. All rights reserved. Subscriptions are available at a cost of \$18.95 plus \$1.32 GST including postage and handling by writing our office, 258 Wallace Ave. Ste. 206 Toronto, Ontario M6P 3M9 E-mail: teachmag@istar.ca Tel (416) 537-2103, Fax (416) 537-3491. Unsolicited articles, photographs, and artwork submitted are welcome but TEACH cannot accept responsibility for their return. Contents of this publication may be reproduced for teachers' use in individual classrooms without permission. Others may not reproduce contents in any way unless given express consent by TEACH. Although every precaution is taken to ensure accuracy, TEACH, or any of its affiliates, cannot assume responsibility for the content, errors, or opinions expressed in the articles or advertisements and hereby disclaim any liability to any party for any damages whatsoever. Canadian publication mail sales product agreement No. 195855. ISSN No. 1198-7707.



By Richard Worzel

Computers are now widespread in the classrooms of Canada, and more are on their way. They have become so inexpensive that the prospects of having students work in an “information rich” environment, through software, CD-ROMs, and the Internet, is seductive. Moreover, as time goes on, more and more software will appear, created to assist teachers and students.

But there’s a subtle threat lurking here that I first warned about in the June/July 1993 issue: “...because computers are becoming so powerful, and so cheap so quickly, we will be able to use them casually, even profligately. Whether we will use them well - that’s a different story. Certainly most of the money that has been spent on using computers in education has been wasted, with little positive, and sometimes adverse, effects.”

This was confirmed in a recent study by Joshua Angrist of MIT and Victor Lavy of the Hebrew University of Jerusalem. The study, published in the *Economic Journal*, looked at Israeli schools and found that grade four students who had grown up with computers in their classrooms did worse in mathematics than their peers in comparable schools that did not have computers. Angrist and Lavy concluded that since the costs of computers are clear-cut and the benefits are murky, the burden of proof now lies with the promoters of classroom computers.

Coincidentally, BECTA (British Educational Communications and Technology Agency), a non-profit UK group devoted to assisting schools in using technology for educational purposes, recently concluded a three-year study on computers in 60 English primary and secondary schools. BECTA’s findings seem to contradict those of Angrist and Lavy: high school students who had grown up with computers in the classroom averaged about 1/2 a year ahead of students who hadn’t in subjects like science and design technology, and more than 3/4 of a year in modern languages. So it would be easy to be confused: are computers a blessing or a curse?

The answer lies in two simple sentences in the BECTA report: “There is no consistent relationship between the average amount of ICT [Information and Communications Technology] use reported for any subject at a given Key Stage [grade] and its apparent effectiveness in raising standards. It therefore seems likely that *the type of use is all-important.*”

Or consider this comment on Angrist’s and Lavy’s findings by *The Economist* magazine: “[O]ne of the vaunted advantages of computer-based learning, that it allows children to proceed at their own pace, has so far turned out to be wrong: educational software is much more *one-size-fits-all than a good teacher.*”

Computers are a tool, nothing more. They happen to be a very powerful tool, but they are no better than the people who use them. If they are used badly, then they can be powerfully harmful. If they are used well, they can be wonderfully beneficial. It’s the use of computers that’s important, not the fact of computers. This has several important implications.

The first implication is very simple: if you have computers in your classroom, and you’re not sure why, get rid of them. You need to have a very clear, compelling reason for investing time, money, and effort in using computers, or else you are probably wasting those resources at a time when resources are dwindling.

Next, computers need to be fully integrated as tools that help teachers teach, and help students learn, and not just “bolted on” to existing teaching methods. If you taught without books or writing materials, using oral methods and memory techniques, your methods would be vastly different than if you were using books, paper, and writing implements. The transition to using computers is just as stark, and if you have not re-designed the curriculum you are teaching to exploit the particular strengths (and avoid the notable weaknesses) of computers, then you are misusing your tools, and your students will suffer. “The computer’s greatest shortcoming is its limited ability to answer questions,” says Art Lightstone, a high school teacher at Holy Trinity School in Concord, Ontario who makes extensive use of computers to assist his teaching. “It is difficult enough for a teacher to interpret a student’s question so that he/she fully understands the student’s point of confusion. A program, at this point in time, cannot do this.”

“...because computers are becoming so powerful, and so cheap so quickly, we will be able to use them casually, even profligately. Whether we will use them well - that’s a different story.

Certainly most of the money that has been spent on using computers in education has been wasted, with little positive, and sometimes adverse, effects.”

Lastly, teachers must be able to use computers well. This is especially true as students are generally more capable with computers and the Internet than their teachers are. Accordingly, if you, the teacher, are not aware of what’s out there, and do not take appropriate steps

to make sure your students are using technology to learn, then they will download homework, and use technology to cheat instead. "Yes, young people certainly seem to be immersed in computer culture, and yes, they seem to learn faster than adults," says Lightstone, "but that is no excuse for adults to play dead when it comes to learning computer applications. The teacher should have a pretty good idea of where the computer is going to take the students before they get there."

Which brings me back to my primary concern: computers are coming to the classroom. Let me change the emphasis: computers are coming to the classroom in Canada, whether it's a good idea or not, whether we're ready for them or not, whether we use them well or not. They're coming because thoughtless ministries of education and school boards have become passionate believers in technology, though they can't explain

why. They're coming to the classroom because well-meaning parents believe that students must be computer-literate, and therefore should have computers available in the classroom. We even hear talk of a "digital divide" between those students who have access to computers, and those who don't, as if being deprived of a computer automatically means being left behind.

But if computers are harmful to education unless they are used well, and if (as I believe) the majority of teachers are still less computer-literate than their students, then we are putting resources into computers that would otherwise go into more teachers, more books, or other, proven tools that we know how to use, and that do improve results. In short, our current policy of computers-at-all-costs means we are investing in tools that will lower standards and produce poorer results.

That is, they will produce poorer results unless we focus on learning how to use them well, in which case, they will be a blessing for our students. You no longer have a choice about whether computers are coming to your classroom. Your only choice is: will you step back and watch as your students are hurt by them, or will you roll up your sleeves, learn new skills, and make the investment pay off? ☺

Futurist Richard Worzel lives in Toronto, and volunteers his time to speak to high school students as his schedule permits. Contact him through this magazine, or at futurist@futuresearch.com.

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District Solution for Communicating, Collaborating and Learning Online

Editorial Sponsorship By Dave Murphy

The Communications Challenge

"We're a very distributed organization. We have over 58 sites – elementary and secondary schools, alternate schools, a central office, maintenance facility ... it's difficult to communicate in a timely manner," says Stewart Lynch, Director of Instruction, Technology and Information Services, Richmond School District in B.C. Traditionally, the district would send paper-based memos and information out to schools in trucks twice a week.

It's allowed us to give the teachers, administrators, and students the flexibility of time. They are no longer confined to the 8 till 4 o'clock time frame in a school,

"Money is always a factor, and we need to be able to make the best use of all our resources. We can't afford to have a large IT department anywhere near the proportions of most corporations. So the total cost of ownership of any product is important to us," says Lynch.

The district's objective was to find a cost-effective solution that would allow them to manage information efficiently, and give staff access from wherever they happened to be working, whether that was a classroom, a district office, or even from home. And, with so many remote locations, whatever technology they chose had to be easy to learn and use, and flexible enough to address both their instructional and administrative requirements.

"Ease of use is paramount for us. We can't afford to go out and do training simply because we are distributed over 58 sites. And there's no way that we can get everybody in one room, so the product had to be intuitive," explains Lynch.

The FirstClass Solution

Designed for use in educational environments, FirstClass provides a robust set of functions for multimedia enriched communication, collaboration, teaching and learning. Unlike basic email packages,

it integrates multimedia messaging, Web publishing, calendars and shared workspaces into a single, cohesive environment.

Says Lynch: "With FirstClass, having a powerful application in a central, single server and being able to deliver the same services to all users is economical for us. And we can meet our needs with very little technical support. In fact, I manage our FirstClass system off the side of my desk, so we have no full-time technical administrator. It just runs."

For a school district that provides both PC and Macintosh computers for staff and students, the fact that FirstClass is a fully-cross platform solution was also essential. "Having a cross-platform solution for a school district is very important. The product is absolutely identical on both sides, there's no inferior Macintosh client or inferior PC client. To the end users, the menus are identical, functionality is exactly the same. There is absolutely no difference."

Teachers in the district agree on FirstClass' ease of use and cross-platform flexibility. "When students are using FirstClass, they can log onto their account from home and work on something, and when they come to school and open it on a Mac, it's identical," enthuses Gord Powell, a Teacher-Librarian who also uses FirstClass to teach a distributed learning course across the district.

Because the FirstClass interface is so easy for staff to navigate, the district has used the FirstClass RAD suite of tools to create applications that allow users to access ODBC data stores right from their FirstClass desktop. Staff now have information at their fingertips that was traditionally only available to limited staff, or only in printed format. "FirstClass RAD gives us the ability to develop online applications. One of the big features for us is the ability to access our databases. For example, one application catalogs the teaching resources that are available for teachers. In FirstClass, the teachers search for the available materials, and can even reserve them online," Lynch explains.

For Richmond School District, developing a total communications and collaboration solution is an ongoing process. Recently, the district added Centrinity's FirstClass Unified Communications to their communications environment. The benefit of Unified Communications for teachers and administrators is the ability to access information and communicate in a timely manner. "It's allowed us to give the teachers, administrators, and students the flexibility of time. They are no longer confined to the 8 till 4 o'clock time frame in a school, because they know they'll be able to access FirstClass from anywhere to post and review assignments, respond to messages from parents, and review important information from the board office," says Lynch.

For a school district, the ability to manage a single application to facilitate everything from information delivery – such as catalog searches, hosting the district's Web site, and publishing calendars of events – to individual and group communication – voice, fax, and email messages, shared workspaces, personal home pages, and online learning courses – is essential.

To experience the power of FirstClass go to www.firstclass.com or call 1.888.808.0388. Dave Murphy is with the FirstClass division of Open text.





Aspects of Learning: Using Technology Creatively in the Classroom

By Colin Fraser



Young students in Canada are some of the most technologically savvy in the whole world. The children and teens attending primary and secondary institutions across the country today are growing up immersed in the language of technology. According to the Programme for International Student Assessment (PISA — www.statcan.ca/Daily/English/021029/d021029a.htm), a typical 15-year-old Canadian student in 2000 attended a school where there was one computer for every six students. The same PISA report finds that nine out of every ten young Canadians had a computer at home, and seven out of ten had access to the Internet at home. Educators in this country are on the front lines of this explosion of technology in our children's lives. The evolution of computer software and access to the Internet has created a whole new world of opportunities for teachers and students alike. The following is a snapshot of four Canadian teachers and the impact of technology on their classrooms:

The movie playing on the television monitor suspended from the ceiling in James McLellan's classroom has all the hallmarks of a Hollywood production. In fact, anyone watching the young actor on the screen struggling through a snow laden Winnipeg forest shouting out his friend's name in panic, shot from a multitude of angles and seamlessly edited, would think they were watching the work of a seasoned, professional film crew.

But that would not be the case. *Walking Wounded* is the fourth major feature film production from the grade nine students taking the digital filmmaking course at Arthur A. Leach Junior High in Winnipeg.

"I walk through the whole process of making movies," says McLellan, winner of the Prime Minister's Certificate of Achievement for his program. "We teach students expression through the language of film." The innovative program has garnered all sorts of acclaim in the prairie city, winning awards in local film contests and being featured prominently in the local paper. Last year's *Walking Wounded*, clocked in at 1 hour and 40 minutes, has been screened commercially at a downtown theatre. There are even copies for rent at local video stores. The horror story about a werewolf took nine months to complete, including script writing and shooting times, which took place mostly on weekends and after school. The course covers a full year and early on McLellan guides students through all the technical aspects of filmmaking, lighting, camera positioning, sound, and many other details essential to the process but unknown to the novice film student. In January, the students begin the arduous task of creating their own film.

McLellan, also teaching Art and Drama, bristles when he hears people making the assumption that the course is completely focused on computer software and high-tech gadgets. He would run the program with a camera and two VCR's if he had to.



“The content is driven by technology, but technology is not the course. You master the technical side of things so you can master the art form.”

But the Winnipeg-born educator and amateur filmmaker does admit that evolution in computer software and the advent of digital film have made things much more accessible for his students. And with the program in its fifth year of existence, he has translated his trial and error experience and the high-tech comfort level of his students into larger responsibilities for those taking the program. For the first feature film project *Dracula*, done four years ago, McLellan had to do all the editing. Now with the help of the Final Cut Pro 2 software, the students are responsible for the whole editing process. A script break down program also allows assistant directors to input scenes, special effects, sound effects, and characters, categorizing them to create a shooting schedule. All that McLellan does now is direct. The cost factor for outfitting a digital film lab has also been dramatically reduced over the last few years.

“We’re talking about an \$4000 editing suite that ten years ago, maybe even five years ago, would have been \$400,000,” he says of his 11-computer headquarters for the 22-student program. And McLellan is more than covering costs with the money his films make. Last year, *Walking Wounded* had close to a \$2000 tab, and the program took in \$8000 during the public screening. With the money, new equipment has been purchased, cutting down on rental costs and streamlining the program even more.

McLellan strongly believes in the collaborative process that is filmmaking. He argues that movie making draws heavily from other courses in the curriculum like History, English, and Social Studies.

“We’re not teaching them just computer skills, we’re teaching them thinking processes, we’re teaching them problem solving, expression, it’s an arts course more than it is a computer course.”

Indu Varma has been looking for ways to integrate technology into her classroom since the early 1980’s. Back then, the New Brunswick native introduced “cutting edge” high-tech equipment like Commodore 64’s and Apple computers with tape drives into the academic lives of her students. And for the past 20 odd years, the multiple-award winning Varma has continued to use these tools to help expand the minds of her pupils.

“Technology has given me the opportunity to challenge some of my gifted students and also provide remediation for others. Learning with the computer provides instant feedback

and students love it because they can learn at their own pace,” says Varma,

an educator at the primary and secondary level for 33 years who currently teaches Media Studies and Child Studies to Grade 11 and 12 students at Tantrammar Regional High School in Sackville, New Brunswick.



Varma, originally hailing from India, is particularly fond of projects connecting her students to communities around the world. In 1990, a few years before the explosion of the Internet, she set up an Intranet connection for her Grade Six classroom with the help of the New Brunswick telephone company, who donated some used equipment and helped to set it up. Varma then enlisted assistance from nearby Mount Allison University for technical support and set up a deal with the Canadian International Development Agency (CIDA) to pay for the telephone hook-up. The project was called “Increasing Awareness Among Youth Through Telecommunication” and linked the Canadian classroom with students from Belgium, Costa Rica, and the United States. After starting with simple correspondence, things took a dramatic turn with the eruption of the Gulf War in early 1991, and when their counterparts from Costa Rica suffered from a devastating earthquake in Limon later that same year.

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They didn’t hear anything from the Central American students for over a month. Then came the replies – first-hand accounts of the personal suffering a deadly earthquake leaves in its wake. It was something the students couldn’t fathom before, but now could empathize. A campaign to raise money for their Costa Rican brothers and sisters ended up becoming a school wide project, and afterwards the Canadian Embassy in Costa Rica matched the amount. The total tally was \$10,000 American. A few years later, Varma was back at it after being given a grant of \$25,000 from the Canadian Identity Branch for “Towards Raising a Canadian Consciousness,” which connected 50 schools to discuss and debate the topics raised during the Meech Lake Accord Constitutional debates. She won the Prime Minister’s Award for Teaching Excellence in 1993 for that effort.

Varma is definitely from the “go out and get it done” school when it comes to information technology projects. She admits that they can be expensive, but there are ways around it. “I’ve been able to do these things through grants I’ve applied for,” she says. “Things have had to be done through outside help and partnerships.” One of the grant agencies Varma recommends is Canada’s SchoolNet Grassroots Programs at www.schoolnet.ca/grassroots. It provides funding for the effective integration and use of innovative collaborative learning projects using Information and Communication technology.

This year, Varma’s students are using Power Point presentations to display venture plans for a small business project in an entrepreneurship class, and her Child Studies students are creating a Web site on teen pregnancies.

Blueprint Earth is another interactive online project where students create a plan for future generations of the planet – and share those plans with others from around the world. It can be viewed at www.kidlink.org.

She adds that teachers have to learn to ask for things and not to be afraid to admit that they don't know everything – especially about computers. “Kids are so adept with computer skills today, they can do almost anything and help you to learn as well.”

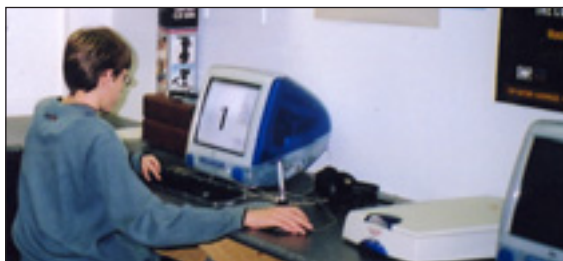
“The newness of the school helps. We are always on the cutting edge,” says Marilee Paterson while enjoying the end of her day at Tom Baines Junior High, in the heart of affluent northwest Calgary. The 27-year veteran educator teaches Grade Eight and Nine Social Studies and Life Skills at the six-year-old school. She finds that the tech-friendly institution with a population of 750 meshes well with students afforded the opportunity to use the latest information technology gadgets through their parents.

“In my classroom of 30, I would say at least two-thirds have access to a laptop computer at home,” she says. And that bodes well for Tom Baines, because it is currently taking part in a pilot project through Industry Canada, where the over 300 desktop computers currently in the school will be replaced by wireless laptops in three years. Paterson predicts a future where Grade Seven students will be given a laptop computer on their first day of Junior High.

In the meantime, she is one of the first teachers in the school instructing a full class armed with individual laptops, creating some new classroom management issues. “It does increase the stress level when kids aren't listening and playing around on the keys,” says Paterson. The wireless technology presents challenges as well. A dead spot in the classroom forces some students out into the hallway so they can download.

But for the most part, Paterson, winner of a Prime Minister's Certificate for her on-going “From Russia With Love” (<http://canada.eimc.ru>) telecommunicative project, that hooks up students in her Calgary classroom with children in Ekaterinburg, Russia, feels the integration of technology into the classroom has been a good thing. “It keeps their interest,” she says. “With all 30 in my classroom, they were completely engaged in what they were doing.” But there are also some new expectations, and students get restless if things take too long to get up and running.

Paterson says the integration of advanced computer technology at Tom Baines is possible because of the great technical support system they have in place. One of the teachers, Richard Trapp, now only teaches a quarter of the time because the rest of his day revolves around trouble-shooting and helping teachers who may be struggling with the increasing role of technology in the classroom. “It is probably intimidating at first, but if you bite off a little at a time, it is not so overwhelming,” says Paterson.



Although the Alberta educator is embracing the opportunities of a high-tech globalized classroom, she is not completely persuaded that the goal of learning basic content is always achieved. “I'm not absolutely convinced it will ensure the material is learned. I know they have mastered the technology, but I'm not sure about the content.”

Down the road, Michelle Speight's Grade Two and Three class at Parkdale Elementary school is connected through the Web to 16 other classrooms from around the world. Speight finds the youngsters in her room are as comfortable with computers as is she. The young teacher has been at it for five years and constantly refers to the Internet for teaching ideas.

She swears by www.tolearn.ca, an organization created by teachers and funded by the government. On the Web site, educators can

access funding and make contacts with others who may want to participate in a telecollaborative project. “Everything is specified by grade, topic, and category – I use it every time I teach something new,” says Speight.

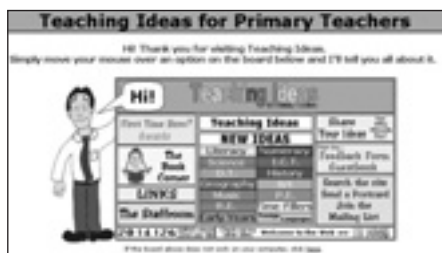
Right now her class is involved in virtual museum project with a number of other classrooms. After being one of the schools participating in an online Arctic and Alberta project, Speight was impressed with an Alaskan school's creation of a virtual museum filled with Inuit items. And after visiting the “Virtual Alaska Room” her students began to clamour for a showcase of southern Alberta pioneer history of their own. So, after being introduced to Vrworx software, the Virtual Pioneer Museum was born (<http://projects.cbe.ab.ca/ict/2learn/mm.speight/museumconnections>).

“We transferred the entire classroom into a museum,” says Speight. “And we had a lot of help from the community.” That included grandparents and parents bringing in old artifacts, a local film company loaning out some items, and involvement from Calgary's Glenbow museum. Speight's students recently spent a week at the largest museum in Western Canada, and all their activities, from journal writing to drawings to photographs, are posted on the Net.

Speight believes computer technology allows parents to actively participate in their children's learning: “They take it home to their parents and it becomes a bulletin board of sorts. Two-thirds of my kids sit down with their parents at home to look at their projects on the computer.”

Although the lure of technology can be seductive for students, clever and resourceful teachers will use it as a tool, albeit a sophisticated one, to teach the curriculum in their classrooms. When used well, technology can be a platform from which teachers motivate their students to learn. 🍌

Colin Fraser is a former educator and freelance writer based in Winnipeg, Manitoba.



Teaching Ideas for Primary Teachers

<http://www.teachingideas.co.uk>

Here is a site that is increasingly rare on the World Wide Web - a site that has been around since 1998 and is managed by a full time teacher! Mark Warner is a primary teacher in Kent in the United Kingdom. Teaching Ideas for Primary Teachers is a site that he started while still in university to share his own teaching resources with others - and what a list of resources he has!

Ideas, activities, and worksheets are organized to cover the entire UK national curriculum: Literacy, Science, Design and Technology, Geography, Music, Religious Education, Numeracy, Information and Communication Technology, History, Art, and Physical Education. A number of these subjects are divided into categories. Literacy contains Reading, Writing, Speaking, and Listening activities. Numeracy contains Number, Shape, Space, Measure, and Data Handling Activities. Most of the resources are in html format, although some are in pdf as well.

Rounding out this site are other sections called Time Fillers, Book Corner, Links, The Staffroom, Share Your Ideas, Feedback Form and Guestbook, Search, Postcard Centre, and Mailing List. The Time Fillers section is a great area to find ideas for filling free time during class. The Staff-room is a great place to get away from the classroom. It's a place where you can share ideas and chat on the noticeboard, meet that someone special, learn how to dance, enter a contest, or just spend some time playing some highly addictive games.

Teachers are encouraged to contribute ideas, lesson plans, and any other information that would help fellow teachers.

A very impressive list of teacher contributors is posted thanking many of the teachers who shared resources.

Primary and Junior teachers looking for a site that contains a lot of well written lesson plans for children ages 5 to 11, and is easy to navigate and use, should make Teaching Ideas for Primary Teachers one of their first stops on the World Wide Web.



Terri Husted's Homepage: A Homepage for New (And Not So New) Math Teachers

<http://people.clarityconnect.com/webpages/terri/terri.html>

Although this Web site bills itself as "A Homepage for New (And Not So New) Math Teachers," it is much more than that. It's also a homepage for new and not so new teachers. Based on over twenty years of experience, the Web site presents Terri Husted's philosophy of teaching and math.

This philosophy is clearly stated on the opening page, and it is well worth reading a number of times. Husted sums it all up in this final sentence: "It is time in educational reform that we focus on the qualities of good teachers and not just good programs."

Husted follows this up with her first link, The First Key to Success: Connecting with Your Students. Here she outlines four quick ways to connect with students: learn their names as soon as possible, make a seating chart, keep an information sheet handy, and make accommodations for special needs students. She expands this quick start method with tips and strategies that every good teacher employs: having a fair system of discipline and grading, being consistent and fair, communicating with parents, use of tone of voice, setting up structure for group work, expectations, and the teaching of background knowledge. Husted sums up this page with something tried and true: "Students may forget something you taught them in math, but they will never forget how you made them feel."

The link to Classroom Management is one I recommend for beginning teachers and teachers who want to review their class management from a different perspective. Husted offers six questions to ask yourself if you are having discipline problems in the classroom.

Once your class is all set up the way you want it, you're ready for the teaching of math. There are links here for Math Lessons and Math Projects, Homework and Assessments, Tons of Data for Statistics Lessons, and links to other math and science sites and activities. My favourite link is Most Loved Problems, which includes the classics, "Crossing The Bridge" and "Who's Telling The Truth."

Terri Husted's Homepage is for any teacher who wants to fine tune their teaching, especially in math.

Marjan Glavac is author of "The Busy Educator's Guide To The World Wide Web." He can be reached at marjan@glavac.com or <http://www.glavac.com>



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Perspectives d'apprentissage, ou l'utilisation créative de la technologie en classe

Colin Fraser



Les élèves canadiens sont parmi les plus calés du monde sur le plan technologique. Les enfants et les jeunes qui fréquentent aujourd'hui les écoles élémentaires et secondaires du Canada grandissent immergés dans la langue de la technologie. Selon un rapport du PISA (Programme international pour le suivi des acquis des élèves — www.statcan.ca/Daily/Francais/021029/q021029a.htm), en 2000, un élève canadien typique de 15 ans fréquentait une école qui disposait d'un ordinateur pour six élèves. Toujours selon le PISA, neuf jeunes Canadiens sur dix avaient un ordinateur chez eux, et sept sur dix y avaient accès à Internet. Dans notre pays, les éducateurs sont en première ligne de cette explosion de la technologie dans la vie de nos enfants. L'évolution des logiciels et l'accès à Internet ont créé tout un monde nouveau de possibilités pour les professeurs comme pour les élèves. Voici une description de ce que font quatre enseignants canadiens dans leur classe et de ce que la technologie leur permet de faire.

« Je suis passé par toutes les phases de la réalisation », déclare M. McLellan, gagnant du Certificat de réussite du Premier ministre pour ce cours. « Nous enseignons l'expression aux élèves par le truchement du langage du film. » Ce programme original, dans cette ville des Prairies, a fait l'objet de nombreux éloges, remporté des prix dans les concours cinématographiques locaux et fait la une du journal de la ville. Ce film de l'an dernier, qui dure une heure quarante minutes, a été projeté sur l'écran d'une salle commerciale de la ville. Il en existe même des copies qu'on peut louer dans les clubs vidéo. La réalisation de ce film d'horreur mettant en scène un loup-garou a pris neuf mois, y compris la rédaction du scénario et le tournage qui s'est déroulé surtout pendant les fins de semaine et après l'école. Le cours couvre une année complète et, très tôt, James McLellan guide les élèves dans tous les aspects techniques de la réalisation cinématographique, y compris l'éclairage, la position des caméras, le son et de nombreux autres éléments essentiels mais inconnus de cinéastes novices. En janvier, les élèves s'attellent à la tâche difficile de faire leur propre film.

Le film projeté sur l'écran de télévision suspendu au plafond de la classe de James McLellan a toutes les marques d'une production d'Hollywood. En fait, à regarder ce jeune acteur avancer péniblement dans une forêt enneigée aux abords de Winnipeg en criant le nom de son ami dans sa détresse, filmé sous différents angles, avec un excellent montage, on pourrait penser que c'est l'œuvre d'une équipe de tournage professionnelle chevronnée. Pas du tout. *Walking Wounded* est le quatrième long métrage important réalisé par les élèves de 9^e année inscrits au cours de réalisation de film numérique à l'école Arthur A. Leach Junior High de Winnipeg.

M. McLellan, qui enseigne également l'art dramatique, s'irrite lorsqu'il entend dire par certaines personnes que le cours est essentiellement sur les logiciels informatiques et les gadgets high-tech. En fait, il pourrait très bien faire son cours avec une seule caméra et deux magnétoscopes. « Le contenu est orienté par la technologie, mais la technologie n'est pas du tout l'objet du cours. Il faut d'abord maîtriser le côté technique des choses de façon à maîtriser ensuite la forme artistique. »



Cet éducateur et cinéaste amateur, né à Winnipeg, admet en effet que l'évolution des logiciels et l'avènement de la technologie numérique ont rendu les choses beaucoup plus accessibles à ses élèves. Et dans ce programme, qui en est à sa cinquième année, il a traduit son expérience empirique et l'aisance technologique de ses élèves en une série de responsabilités pour ceux qui suivent le cours. Pour le premier long métrage, *Dracula*, réalisé il y a quatre ans, M. McLellan avait dû faire tout le montage. Aujourd'hui, avec le logiciel Final Cut Pro 2, ce sont les élèves qui sont responsables du montage. Un logiciel de décomposition du script permet également aux assistants metteurs en scène d'entrer des scènes, des effets spéciaux, des effets sonores et des personnages, les catégorisant pour établir un calendrier de tournage. Aujourd'hui, James McLellan se contente de diriger les opérations.

Le coût pour équiper un laboratoire numérique a également été réduit de beaucoup au cours des dernières années.

« Notre studio de montage nous a coûté environ 4 000 \$ alors qu'il y a dix ans, peut-être même cinq ans, il aurait coûté 400 000 \$ », dit-il de son studio équipé de onze ordinateurs pour vingt-deux élèves. Par ailleurs, avec l'argent qu'il retire de ses films, M. McLellan rentre amplement dans ses frais. L'année dernière, *Walking Wounded* a rapporté près de 2 000 \$, et le programme a encaissé 8 000 \$ grâce aux projections publiques. Il a donc acheté du nouveau matériel, réduisant ainsi les frais de location et rationalisant encore davantage le programme.

M. McLellan croit profondément dans le processus de collaboration que nécessite la réalisation d'un film. Il affirme que celle-ci tire énormément d'éléments d'autres cours du programme, tels que l'histoire, l'anglais et les études sociales.

« Nous ne leur enseignons pas simplement des techniques informatiques, mais un processus de pensée ; nous leur enseignons la résolution de problèmes, l'expression. C'est davantage un cours d'art qu'un cours d'informatique. »

Depuis le début des années 1980, Indu Varma cherchait comment intégrer la technologie dans sa classe. À l'époque, cette native du Nouveau-Brunswick introduisait dans la vie scolaire de ses élèves le nec plus ultra de l'équipement haute technologie, avec des ordinateurs Commodore 64 et Apple, et des dérouleurs de bande. Pendant les quelque vingt dernières années, cette dame — qui a remporté de nombreux prix — continue d'utiliser ces moyens techniques pour élargir l'esprit de ses élèves.

« La technologie m'a permis de stimuler mes élèves doués ou de faire un enseignement correctif avec d'autres. L'apprentissage par ordinateur fournit un feedback immédiat et les élèves aiment ça parce que cela leur permet d'apprendre à leur propre rythme », dit M^{me} Varma, éducatrice à l'élémentaire et au secondaire depuis trente-trois ans et enseignant actuellement les études médiatiques et l'étude de l'enfant à des élèves de 11^e et de 12^e années à l'école secondaire régionale Tantramar de Sackville (Nouveau-Brunswick).

M^{me} Varma, dont la famille est originaire de l'Inde, aime particulièrement les projets qui permettent à ses élèves d'entrer en relation avec d'autres communautés de par le monde. En 1990, quelques années avant l'explosion d'Internet, elle avait établi une connexion Intranet pour sa classe de 6^e année avec l'aide de la compagnie de téléphone du Nouveau-Brunswick, qui avait fourni du matériel d'occasion et participé à son installation. M^{me} Varma a alors demandé les services de l'assistance technique de l'Université Mount Allison toute proche et conclu un marché

avec l'ACDI (Agence canadienne de développement international) qui a pris à sa charge le raccordement à la ligne téléphonique. Le projet, baptisé « Increasing Awareness Among Youth Through Telecommunication » (Mieux sensibiliser la jeunesse grâce à la télécommunication) a permis de relier la classe canadienne à des élèves de Belgique, du Costa Rica et des États-Unis. Parties d'une simple correspondance, les choses ont pris une tournure tragique avec la déclaration de la Guerre du Golfe au début de 1991, et le tremblement de terre de Limon au Costa Rica, la même année.

Pendant plus d'un mois, les jeunes Canadiens furent sans nouvelle de leurs camarades d'Amérique centrale. Puis les réponses arrivèrent — relations directes de la désolation et des souffrances personnelles qu'un tremblement de terre laisse sur son passage. Naguère incapables de comprendre les ravages d'un tel événement, les élèves s'associaient maintenant à la peine de leurs amis. Une campagne visant à recueillir des fonds pour leurs frères et sœurs costaricains s'est élargie à toute l'école ; avec la contrepartie donnée par l'Ambassade du Canada au Costa Rica, la somme totale recueillie a atteint 10 000 \$US. Quelques années plus tard, Indu Varma revenait à la charge après une subvention de 25 000 \$ octroyée par la Direction générale de l'identité canadienne pour son programme « Towards Raising a Canadian Consciousness » (Vers une conscience canadienne) qui a permis de faire entrer en relation cinquante écoles pour discuter des sujets soulevés durant les débats constitutionnels sur l'Accord Meech. En 1993, cette activité lui a valu le prix du Premier ministre pour l'excellence dans l'enseignement.

Pour des projets basés sur la technologie de l'information, M^{me} Varma est, de toute évidence, dans une école qui « ne recule devant aucun sacrifice ». Elle reconnaît que cela peut revenir très cher, mais qu'il existe toujours des moyens de s'en sortir.

« J'ai pu réaliser ces projets grâce aux subventions que j'ai demandées », dit-elle. « Certains ont nécessité une aide extérieure et des partenariats. » L'un des organismes subventionnaires qu'elle recommande est Rescol à la source (voir le site www.schoolnet.ca/grassroots). Ce programme canadien octroie des fonds pour l'intégration et la bonne utilisation de projets coopératifs d'apprentissage fondés sur la technologie de l'information et des communications.

Cette année, grâce à PowerPoint, les élèves de M^{me} Varma ont présenté le plan de développement d'une petite entreprise dans le cadre d'un cours d'entrepreneuriat, et ses élèves du cours sur l'étude de l'enfant créent actuellement un site Internet sur les grossesses chez les adolescentes.

Blueprint Earth est un autre projet interactif en ligne dans lequel les élèves créent un plan pour les générations futures de la planète et le communiquent à d'autres élèves autour du monde. À voir sur le site www.kidlink.org.



M^{me} Varma ajoute que les professeurs doivent apprendre à demander et ne pas hésiter à reconnaître qu'ils ne savent pas tout — notamment en ce qui concerne les ordinateurs.

« Aujourd'hui, les enfants en connaissent tellement en informatique qu'ils peuvent faire presque tout et ils vous aident également à apprendre. »

« Le fait que notre école soit toute nouvelle est précieux. En effet, nous avons toujours été à la fine pointe », déclare Marilee Paterson, détendue en cette fin de journée de travail à Tom Baines Junior High, au cœur du quartier nord-ouest très résidentiel de Calgary. Cette éducatrice, qui a derrière elle vingt-sept ans d'expérience, enseigne les études sociales et la dynamique de vie à des élèves de 8^e et de 9^e année dans cette école construite il y a six ans. Elle estime que l'établissement, très orienté technologie, avec un effectif de 750 élèves est parfait pour des enfants à qui l'aisance des parents permet d'avoir les derniers gadgets de la technologie de l'information.

« Sur mes trente élèves, je dirais qu'au moins les deux tiers ont accès à un ordinateur portable à la maison », dit-elle. Et cela augure bien pour l'école, car elle participe à un projet pilote sous l'égide d'Industrie Canada dans le cadre duquel les quelque trois cents ordinateurs de bureau actuellement utilisés par l'école seront remplacés, dans les trois ans à venir, par des ordinateurs portables sans fil. M^{me} Paterson prévoit qu'à l'avenir, on donnera aux élèves de 7^e année un ordinateur portable le jour de la rentrée.

Entre temps, elle est l'un des premiers professeurs de l'établissement à enseigner une classe équipée totalement d'ordinateurs portables individuels, ce qui soulève quelques problèmes pour la gestion de la classe.

« Cela augmente certainement le stress, notamment lorsque les enfants n'écoutent pas ou s'amuse avec leur clavier. » La technologie sans fil présente également des difficultés. Une zone de silence dans la classe oblige certains élèves à aller dans le corridor pour pouvoir télécharger.

Dans l'ensemble, M^{me} Paterson, qui a remporté le Certificat de réussite du Premier ministre pour son projet permanent de télécommunication « From Russia with Love » (Bons baisers de Russie), et branché les élèves de sa classe de Calgary avec des enfants d'Ekaterinbourg (Russie) (<http://canada.eimc.ru>), estime que l'intégration de la technologie dans la classe a été une très bonne chose.

« Leur intérêt est constamment en éveil, dit-elle. Ils étaient tous absorbés par ce qu'ils faisaient. Parfois pourtant — comme si on devenait de plus en plus exigeant —, ils s'impatientaient lorsque les choses prenaient trop longtemps à se mettre en place. »

Selon Marilee Paterson, l'intégration d'une technologie de pointe à Tom Baines est possible grâce à une excellente assistance technique sur place. L'un des professeurs, Richard Trapp, n'enseigne maintenant plus qu'un quart de temps, car il passe le reste de ses journées à dépanner et à aider les professeurs qui éprouvent des difficultés avec une technologie de plus en plus présente dans les classes.

« Au départ, c'est probablement intimidant, mais si vous assimilez une chose à la fois, ce n'est pas si écrasant », dit M^{me} Paterson.

Si cette enseignante albertaine est ouverte aux chances qui sont données à une classe high-tech branchée sur le monde, elle n'est pas persuadée que l'objectif d'apprendre les bases est toujours atteint. « Je ne crois pas que la haute technologie assure l'apprentissage de la matière. Je sais qu'ils maîtrisent la technologie ; mais pour le contenu, je suis moins sûre. »

Un peu plus loin, la classe de Michelle Speight, des élèves de 2^e et de 3^e année à l'école élémentaire Parkdale, est reliée par Internet à seize autres classes du monde entier. M^{me} Speight estime que les jeunes de sa classe sont aussi à l'aise avec les ordinateurs qu'elle l'est elle-même. La jeune enseignante y travaille depuis cinq ans et va constamment naviguer dans Internet pour avoir de nouvelles idées pédagogiques.

Elle ne jure que par www.tolearn.ca, site créé par des enseignants et financé par le gouvernement. Sur ce site, les éducateurs peuvent trouver des fonds ou prendre des contacts avec d'autres enseignants qui souhaitent éventuellement participer à un projet de collaboration par voie de télécommunication. « Tout y est classé par année, discipline et catégorie — je l'utilise chaque fois que j'enseigne quelque chose de nouveau. »

En ce moment, sa classe travaille à la création d'un musée virtuel avec d'autres classes. Après avoir participé à un projet en ligne entre l'Arctique et l'Alberta, Michelle Speight a été émerveillée par une école de l'Alaska qui a créé un musée virtuel rempli d'objets inuit. Après l'avoir visité, ses élèves ont réclamé à cor et à cri une exposition de l'histoire des pionniers du sud de l'Alberta, qu'ils feraient eux-mêmes. Ainsi après avoir découvert le logiciel Vworx, le Musée virtuel des pionniers était né (<http://projects.cbe.ab.ca/ict/2learn/mm.speight/museumconnections>).

« Toute la classe s'est transformée en musée, de dire M^{me} Speight, et nous avons eu beaucoup d'aide de la collectivité. » Parents et grands-parents ont apporté de vieux objets, une société cinématographique locale nous a loué quelques objets et le Musée Glenbow de Calgary y a également été de sa participation. Les élèves de Michelle Speight ont récemment passé une semaine dans le plus grand musée de l'Ouest canadien, et toutes leurs activités — les pages de leur journal de groupe, leurs dessins et photographies — sont affichées sur Internet.

M^{me} Speight pense que la technologie informatique permet aux parents de suivre activement les progrès de leurs enfants. « Ils emportent leur ordinateur chez eux pour le montrer à leurs parents, et l'écran devient un panneau d'affichage, si l'on peut dire. Deux tiers de mes enfants regardent avec leurs parents le travail fait sur l'ordinateur. »

Pour les élèves, l'attrait de la technologie peut être très séduisant, mais les enseignants intelligents et ingénieux ne l'utiliseront que comme un outil pour enseigner les programmes, même s'il s'agit d'un outil sophistiqué. Bien utilisée, la technologie peut constituer une plate-forme à partir de laquelle les enseignants motivent leurs élèves. ❧

Colin Fraser était enseignant. Il est actuellement écrivain indépendant et vit à Winnipeg (Manitoba).



Published by Blackstone Multimedia, Zoology Zone is a series of three CD-ROMs that provide young students with an introduction to the world of raptors, bears, and spiders. A mixture of audio-visual presentations (narrated mini-movies), interactive learning activities, music, quizzes, and games are all designed to engage learners and help them understand and retain the knowledge conveyed. This review will be about Zoology Zone - Raptors. Bears and Spiders are almost identical in structure, design, and style.

Zoology Zone - Raptors is organized into five learning areas, or "zones." All About Me, How I Grow, Where I Live, How I Eat, and Did You Know cover all aspects of the world of raptors. There are also tabs on the main screen to a library with Internet links for extended learning, a glossary of terms, and direct access to all the learning games. Within each zone, there are typically four to five sections. If followed sequentially, the zone will start off with an audio visual presentation, followed by interactive quizzes that test your knowledge, and then interactive activities that add new information and learning about the subject.

All About Me explains ornithology (the study of birds) and describes the different types of raptors (owls, falcons, hawks). It then narrates a well-known Indian legend about a hawk who saves the lives of an Indian band. Then a game has you

dismantling an owl pellet to see what type of little critter the owl had recently eaten. Another learning module introduces Bernoulli's Law and how it applies to the dynamics of the wings and flight of birds.

Across all five learning zones, there are 25 separate learning strands and interspersed content delivered with interactive learning modules and games to maintain the active interest and engagement of the learner. There are also interviews with experts in the field. For example, Karl Grantmyre, director of a raptor shelter, describes how to care for injured birds. The workshop area has a good range of suggested learning activities to assist teachers in possible classroom activities away from the computer or provide assignment ideas for learners.

Zoology Zone is designed for the classroom, but would be equally suitable for homeschooling, as a resource in the library, and for the parent of any young emerging lover of birds and animals. With its combination of written text and overlay of narration, the program is ideal for students in grades 2 to 5.

Obviously, the program is for teachers who have access to computers and are looking for learning tools that will engage their students and enhance the learning experience. A Teacher Resource Manual is included on the CD-ROM to help teachers use Zoology Zone in their classrooms.

What really stands out is the ease of navigation and the appealing design that makes the learning experience for younger children so engaging. Design details make the CD-ROM extremely user-friendly. For instance, at the bottom of the screen there is a small yellow bar that lets you easily move between any of the pages in a section.

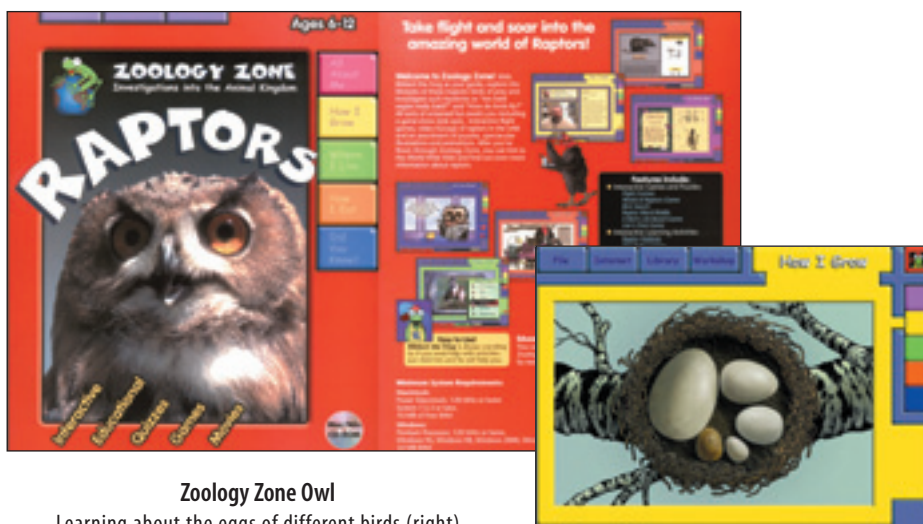
You are given just the right amount of information before you are asked a question, and the games not only test what you have retained, but introduce you to new information in the process. What, in part, makes the program so engaging is that the sections that are testing retention have been turned into games that kids are happy to undertake.

The full use of different types of multimedia really keeps up the viewing interest. One moment you are watching and listening to a mini movie on hawks, and the next moment you are seeing a very funny animated character, like a talking owl, leading you through a game.

Zoology Zone's content was written by teachers. It was commissioned and approved for use in schools by the Alberta Department of Education. It also won the 2001 Gold Award in Education at the New Media Digital Arts Competition in Alberta, Canada. Zoology Zone is currently being used in elementary schools across Canada, and given the content is about nature, would be of applicable value in any elementary school learning situation. The quality of the learning content is rock solid.

Zoology Zone - Raptors is priced at \$34.99 and runs on both Windows and Macintosh computers. It is available from the cdromstore.com at 345 Danforth Avenue in Toronto, ON. To order, call 1-800-250-9229 or visit www.cdromstore.com. For further information, visit Learning Village at www.learningvillage.com.

Dan Lang is a freelance writer based in Toronto and the founder of Learning Village. He may be reached at lang@lang.com.



Zoology Zone Owl

Learning about the eggs of different birds (right)



Voici le eMac[®], un ordinateur polyvalent, conçu spécifiquement pour aider les profs à enseigner et les étudiants à étudier. Le eMac, c'est un solide design tout en un, un écran plat de 17 pouces (43,1 cm), soit 16 pouces (40,6 cm) de lecture, un processeur PowerPC G4 ultra rapide en plus du très puissant et très stable système d'exploitation Mac[®] OS X (et Mac OS 9). Pour en savoir plus, visitez apple.com/ca/fr/education/emac/

Conçu pour enseigner.



Son design compact tout en un, sa résistante coquille de poly-carbonate, son étonnant moniteur à écran plat cathodique de 17 pouces et les trois différents modèles offerts - graveur CD-RW, combiné DVD-ROM/CD-RW ou SuperDrive™ - font du eMac l'ordinateur tout indiqué pour les salles de classe.

Le processeur ultra rapide PowerPC™ G4 avec Velocity Engine™ du eMac lui permet d'opérer les logiciels d'enseignement et de multimédias les plus exigeants en un clin d'œil. Ainsi, les étudiants passent tout leur temps à apprendre... et non à attendre.



Insufflez une bouffée d'air frais dans les devoirs et rendez chacune de vos sorties mémorable avec le logiciel iPhoto™ inclus. Grâce à son interface conviviale, profs et étudiants peuvent importer des photos d'un appareil numérique en quelques secondes, les imprimer, créer des diaporamas et les expédier par courriel. Un jeu d'enfant !

Animez vos cours avec le logiciel iMovie™ inclus dans le eMac. Il suffit de tourner vos images, de brancher votre caméra dans le port FireWire™ du eMac et de procéder au montage. iMovie est si facile à utiliser, professeurs comme étudiants peuvent désormais réaliser leurs projets de vidéo en un tournemain.



Captez toute l'attention de vos étudiants avec la richesse du son des puissants haut-parleurs 16 watts à amplification numérique intégrés au eMac. Vous pouvez aussi opter pour une salle de classe étonnamment silencieuse en proposant à vos étudiants de brancher leurs écouteurs dans la prise audio de leur eMac.

Avec le logiciel inclus AppleWorks™, le eMac a tout ce qu'il faut pour électriser votre classe. Il suffit de le brancher ! Conçu pour fonctionner aussi bien sur Mac OS X que sur Mac OS 9, il comprend six applications essentielles à tout étudiant : traitement de texte, mise en page, dessin, tableur, base de données et présentations.



eMac



The Digital Imaging Project

by Jean Greig

In the computer lab at Peterborough Collegiate and Vocational School a class of grade nine students is focused intently on their computer monitors. Their task is to create a whimsical greeting card that combines funky computer-generated flower graphics and digital images of their own faces, using Adobe Illustrator and PhotoShop software.

These students are at the beginning of a Communications Technology program that will have them creating video productions which incorporate digital video, still photography, computer animation and Flash enhancement by their final year. These are digital imaging skills much in demand in the working world that awaits them after graduation.

Across town at Crestwood High School, teacher Ross Davies shrugs philosophically. "The PCVS program is kind of the envy of the board," he says, explaining that most schools in the Kawartha Pineridge School District simply don't have the equipment or expertise to offer such an advanced program. But his own offering is none too shabby. Working with the local cable

television station, Davies supervises a co-op program in Film and TV Production where students get hands-on experience planning, filming and editing real-life television programs.

Crestwood has no digital video cameras and only one computer capable of running non-linear editing software, so the co-op program relies heavily on the use of Cogeco's equipment. In exchange the cable station gets a weekly half-hour youth magazine program called Straight Up, produced by the students. Davies' students also produce a weekly 3-minute news segment for CHEX-TV, focusing on school and education news.

Just across the playing field from Crestwood is James Strath Public School. It is half an hour after the final bell has rung, and several students are still working in John Ford's grade 6 classroom. They are building a Web site where they will post the results of their research and the digital photos they have taken for a classroom project. Other students are working on electronic portfolios that will showcase their schoolwork, artwork, and other achievements.

American information technology guru David Thornburg has said that today's young people "place images first and text second." Teachers need to take advantage of that interest in visual images to help students in accessing, processing and communicating information.

According to Ron Miller, IT Consultant for the Waterloo Region District School Board (DSB) in southwestern Ontario, digital technology is ideal for facilitating that image-based approach to information, because it is "immediate, personal, creative, flexible, forgiving, and for kids almost magical." He and his board have made it a priority to get digital imaging equipment into classrooms.

"Our goal is to get 4 digital cameras and 4 digital camcorders into every elementary school in our district," explains Miller. His experience has suggested that there needs to be enough hardware readily available that a teacher can plan a classroom activity around the equipment. "If there is only one camera or camcorder in the school, it often turns out that just the teachers use it," Miller says.

Myke Parrington agrees that digital imaging technology can be an effective tool to engage students. Until his retirement last year, Parrington was the teacher-librarian at Ross Tilley Public School in Bowmanville, Ontario, where he ran a "fairly well-equipped" media centre. The students loved it. "Often we would be kicking kids out of the library at 5 p.m., and they'd be back before 8 the next morning," Parrington said. He believes the centre helped to keep many difficult-to-motivate students interested in being at school.

Parrington enjoys checking out the newest imaging technology, but he has done a lot with a little over his years of teaching. Before his school got a digital camera Parrington used a simple technology called Snappy, which can capture still images off VHS video and

translate them into digital files. He taught junior level students to operate the Snappy system, and then set them to work photographing the artwork of primary level students and keying in their stories.

"You don't need a lot of technology," Parrington asserts. What is more important, he feels, is having someone with the interest and expertise to act as an inspiration and a resource to the rest of the staff, whether that be a teacher-librarian, a board consultant, or an enthusiastic parent.

Software Support for Educators

Effectively passing on digital imaging skills to students depends on both the state of technology in the classroom and the ability of current practitioners (both teachers and technicians) to use that technology. Unfortunately, budget cuts have forced many schools to choose between technology and textbooks, and have resulted in drastic reductions in technical support staff in school and board offices. There are some signs that the situation is slowly turning around. In the meantime, there are a number of resources to help teachers incorporate digital imaging activities into their class activities.

Certainly there is no shortage of software. Through provincial licensing agreements, digital imaging programs such as Adobe PhotoShop, PhotoShop Elements, Image Blender, iPhoto, iMovie and many others are already in schools across the country. Multimedia software such as KidPix, Corel Presentations, Power Point and HyperStudio are also in common use.

More at issue than the availability of software is the capability of schools' current hardware to run it and the ability of teachers to keep up with how to use it. Software companies, competing fiercely for the educational market, know it is in their interest to make it easy for educators to use their products. Adobe has extensive support and training available through its website, <http://www.adobe.com/education>. Apple's education support is a little harder to find, but there are free tutorials available for using iMovie at <http://www.apple.com/imovie>.

The Ontario Ministry of Education has just licensed a new software package from Macromedia called Studio MX, which includes the latest versions of Macromedia's hottest software: Dreamweaver, Flash, Freehand, and Fireworks. Arlene Ferguson of Roar Computer Results Inc., the company which brokered the deal between Macromedia and the Ontario Ministry, claims that the availability of Studio MX in schools "will revolutionize Web design and graphic design in K-12."

Ferguson is excited because the deal will, for the first time, give students access to software which is the industry standard for Web and graphic design. But will schools' current hardware be able to run it? And will teachers be able to teach it?

Macromedia is doing its best to overcome these potential obstacles. While the Studio MX package minimum requirements are





a Pentium 3 and Windows 2000, Ontario's licensing agreement includes rights to Dreamweaver 4, an earlier version of the Web design program which will run on a 486 or P1 with Windows 95. There is plenty of software support available for educators at the company's website, www.macromedia.com, and at a special training website, www.trainingcafe.com.



For schools in other provinces Ferguson, recommends negotiating a site license for Studio MX which includes rights to use the software on all school computers and training for one teacher at Macromedia University, the company's online training centre.

Digital Equipment Getting Better, Cheaper

Not all boards or schools have the budget to outfit their classrooms with top notch digital equipment. Fortunately, prices are coming down. "The price we paid this year for a camera is about half what we paid three years ago," says Miller of the Waterloo Region DSB. He emphasizes that simpler is often better when it comes to digital cameras. "Point and click is about all you need," Miller says, because you can rely on the software to do all the manipulation.

Schools in the Waterloo Region are being asked to choose between a digital camera and a digital camcorder for their annual hardware allocation. "Many schools are now opting for the camcorder, because the newer models can also be used to capture still images," says Miller. Using iMovie, for example, students can film a moving



image and then use a scrubber tool to isolate a single image and capture it as a jpg file. "The resolution is not quite as good as with a digital camera," explains Miller, "but it is certainly good enough to be used in presentations or on the Web".

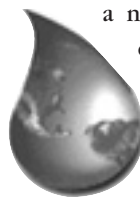
There are also some inexpensive options, especially for lower grade levels where image quality is not as important. Miller suggests checking out the Jam Cam, a simple but durable digital camera appropriate for primary level students. It costs about \$45 and comes with PhotoDeluxe, a simple photo archiving and manipulation program from Adobe.

Support from Boards, Professional Associations and Networks

Although professional development has been drastically scaled back in many school jurisdictions, there are still some opportunities for teachers to hone their digital skills through board-level training. The Waterloo Region DSB, for example, offers workshops to its teachers on how to use digital cameras and camcorders, how to transfer photos into student or teacher presentations, and how to use software to manipulate digital images. The popular workshop "101 Things To Do With a Digital Camera" is often offered externally at provincial conferences, such as the annual conference of the Educational Computing Organization of Ontario (ECOO).

Professional associations like ECOO often have online resources and training for teachers, as well as newsletters, meetings and conferences. ECOO's 2003 conference, slated for January 24 -25 in Waterloo, includes practical workshops such as "Fun and Frustration in the One Computer Classroom" and "iMovie2: An Interactive Tour." (For the full agenda visit www.ecoo.org/e/news/sigconference.html). Similar organizations, such as Computer Using Educators of British Columbia (CUEBC), exist in most other provinces.

On the national level, Industry Canada's SchoolNet program has a number of initiatives designed to assist teachers in enhancing the use of technology in the classroom. In particular, the Grassroots program provides ideas and funding for teachers to "facilitate the effective integration and use of information and communications technologies (ICT) in the classroom." The emphasis is on creating innovative learning projects utilizing the internet. For more information about the types of projects that may be eligible for funding, visit www.schoolnet.ca/grassroots.



Classroom Activities using Digital Imaging Technology

What a teacher is able to offer students in the way of digital imaging activities is obviously limited by the hardware and software available, and the knowledge base of (or available support for) the teacher. Here are three activities that require no more than a digital camera and software commonly in use in most schools today.



Kindergarten – Grade 3

Illustrated stories: use digital photography to create a finished work that encompasses both art and storytelling.

This is a simple project to combine graphics and text in a single document on the computer. It gives young students experience with computers and digital photography and provides a different medium for creating and displaying illustrated stories.

This could be done as a collaborative project between a junior level class and a kindergarten or primary level class, where the older students are responsible for photographing and uploading artwork and keying in stories.

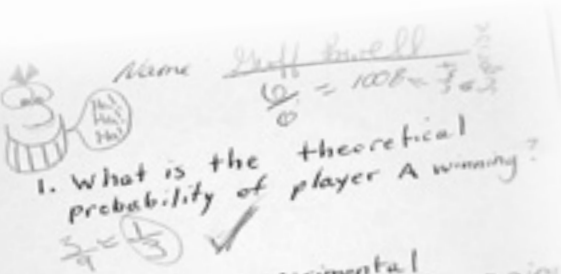


1. Create a piece of artwork (drawing, painting, sculpture, etc.) on a given theme. The theme could be anything that the class is currently studying, e.g. apples, bears, seasons.
2. Using a digital camera, photograph the art and upload each image onto a separate page on the computer.

3. Compose a short story (several sentences to several paragraphs, depending on the grade level) based on the artwork. Add the story to the page containing the image of the student's art.

4. Print out the combined image and text for each student.

5. Laminate and bind the individual pages to create a book of related artwork and stories by the entire class. The booklet can be kept in the classroom, displayed in the school, or sent home with each student for viewing by their parents.



Grades 4 – 6

Electronic Essays: combine researched information and digital imagery to create a multimedia presentation on a selected topic.

Researching and presenting information is a common activity for students. Having students create an electronic report exposes them to a different way of presenting information and builds computer and digital imaging skills. Students can work individually or in small groups for this activity.

1. Choose a topic for research. The topics could be related to a unit the class is currently studying, such as space, light and sound, pioneers, ancient civilizations.

2. Research the topic using the library, Internet or other resources. If students are using the Internet for research, the teacher may want to set up links to a limited number of good sites dealing with the topic.



3. Find or create graphics that complement the research results. Images could be digital photographs, scanned photographs, or student art.

4. Plan a presentation format using multimedia software such as Corel Presentations, Power Point or HyperStudio. The presentation should include traditional essay components such as title page, table of contents, introduction, summary, bibliography, etc.

5. Add information, including artwork, digital photos, text, and any extras such as video clips or sound clips.

6. Present the electronic essay to your teacher or class.





Grades 7-12

Digital or Electronic Portfolios: create a compilation of electronic images and information to showcase a student's achievements

A student portfolio is a collection of student work that exhibits the student's efforts, progress, and achievements. It records and showcases student work, student achievement, and student reflection. It can be used in goal setting, assessment and in conferencing with parents.

An electronic portfolio has the advantage of being compact (contained on a floppy disk or CD-ROM or simply on a Web site!), easily updated, and able to include a variety of different media for illustrating student achievements and interests. In creating a portfolio electronically, the student will learn important computer and digital imaging skills.

1. Decide on a format for the portfolio. It could be created using multimedia software such as Corel Presentations, Power Point or HyperStudio, or with a Web page authoring program such as Claris Home Page or Netscape Communicator.

2. Decide on the material to be included, such as:

- title page
- table of contents
- letter to viewers
- samples of student work (writing, math, artwork, etc.)
- teacher evaluations
- journal entries
- resume
- photos
- sound clips (student reading, music, etc)



3. Plan a layout design for the portfolio. In what order will the information be presented? How will the different sections be linked?

4. Create a template for the portfolio, establishing each card or page and links between them.

5. Add information. This could include taking and inserting digital photos or scanned images, keying in text, adding sound files, etc.

6. Share the finished portfolio with teachers, parents and friends to get feedback on the project.

For more information on creating electronic or digital portfolios, see:

<http://www.essdack.org/port/index.html>

<http://www.hyperstudio.com/showcase/portfolio.html>

Digital photography can be used in the classroom "anywhere there is a need to collect information," says Ron Miller. Here are some other quick ideas for student activities:

- take a digital camera along on a class outing, snap photos, and compile a photographic report about the outing upon return to the classroom;
- create a "virtual museum" for the classroom on a current unit topic by incorporating digital photos, scanned images, downloaded images and researched information on a Web site or using a multimedia program such as HyperStudio or Corel Presentations (check out the Virtual Museum of Canada's Web site at www.virtualmuseum.ca);
- use Adobe PhotoDeluxe to create fake currency with the students' photos in the center and use it for math activities;
- use photo manipulation software such as Adobe Elements to change digital photos to black and white and add outlines and use the resulting images to create a comic book story or report;
- make Rebus drawings by importing digital photos, student sketches or clip art into typed stories;

- create an Internet or Intranet site where photos of class activities, sports events, or student artwork can be posted;
- create a digital yearbook incorporating digital photos of students and activities into a Web site or multimedia software.

Visit the Casio-sponsored Web page "1001 Uses for A Digital Camera" (pegasus.cc.ucf.edu/~ucfcasio/qvuses.htm) or the Kennesaw State University Web site (webtech.kennesaw.edu/jcbeek3/digitalcameras.htm) for literally thousands of ideas of how to use digital imaging in the classroom.

The possibilities really are endless, so start snapping!

Kodak Science of Imaging Program



Kodak Canada's Science of Imaging program provides information about the science of photography and promotes the use of digital photography in

classroom activities. Information about the program and activities for teachers and students can be found on the program Web site, www.kodak.ca/go/teachers or www.kodak.ca/go/students.

As part of the program, Kodak runs a contest for grade 6, 7 and 8 classes to incorporate digital photography into their studies. This year up to 500 schools will be selected to receive a package including 30 one-time use cameras, 30 coupons for free processing of prints into digital format, information for parents, and ideas on how to use digital photography in the classroom.

Participating classes may develop an electronic ezine incorporating digital photography and enter their creation in a contest to win a Kodak digital camera. However, it is not required that classes use the materials in that way.

One of last year's winning entries, from Parkview Public School in Unionville, Ontario, can be viewed at www.bssm.com/ezine.

Details of this year's contest, including which communities across the country will be included in the program, will be forthcoming early in the new year. Teachers can keep an eye on the program Web site, or call Kodak at 1-800-465-6325 and ask for the Science of Imaging Program

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Software

Adobe GoLive / LiveMotion Pack

Adobe's GoLive / LiveMotion Pack offers all the tools you need to build, animate, manage, and deploy dynamic Web sites. GoLive 6.0, with built-in Web authoring and dynamic database tools, is the core product for Web site design and production projects. LiveMotion 2.0 provides the tools you need for creating dynamic, interactive content in formats such as Macromedia Flash and QuickTime. Use LiveMotion to create interactive content for Web pages, presentations, CD-ROM, and handheld devices. LiveMotion integrates with GoLive, Photoshop, Illustrator, and After Effect. The Adobe GoLive / LiveMotion Pack is available to educators for US \$89.00. The educator's version includes a bonus Possibilities CD that includes step-by-step tutorials to help you master the basics of the two programs. The CD also includes tools, such as HTML templates, art files,



and stock photography, to help you create your own school or classroom Web site. To order, contact an Adobe Authorized Education

Reseller. (To locate a reseller near you, visit www.adobe.com/education/purchasing.) For further information on Adobe products for education, visit www.adobe.com/education. For more information please circle reader service #21



Adobe InDesign

InDesign 2.0, Adobe's latest layout and design program, is built to reduce your tasks and speed up your performance. The program's top new features include transparency controls (such as drop shadows, feathering, special effects, and blending modes), cross-media support, and table-building tools that allow you to import directly from Word and Excel. Other top features include the ability to open QuarkXPress and Adobe PageMaker files directly, extensive support for importing and exporting PDF files, and tight integration with Adobe programs such as Illustrator, Photoshop, GoLive, and Acrobat. InDesign 2.0 is built to look and feel like Illustrator and Photoshop to ensure a consistent workflow and predictable results across your files. The printing interface helps ensure precise, reliable results, and there is built-in support for publishing pages in

print, to PDF, as eBooks, and on the Web. You can also publish your documents to multiple channels, including print, the Web, handheld and wireless devices, and more. Adobe InDesign 2.0 is priced at US \$199 for educators. To order, contact an Adobe Authorized Education Reseller. (To locate a reseller near you, visit www.adobe.com/education/purchasing.) For further information, visit www.adobe.com/education.

For more information please circle reader service #22



School Zone Interactive

School Zone Interactive publishes children's educational software titles in the form of electronic workbooks. Three product lines are available: On-Track Software, Pencil-Pal Software, and Flash-Action Software. On-Track focuses on the specific skill sets of math, reading, and language arts. Each

CD-ROM is accompanied by a 32-page workbook and features audio guidance, randomized problems, personalized progress reports, and a variety of arcade games. Twenty titles are available, priced at US \$19.99 each. Pencil-Pal features grade-based educational activities, with four titles available for US \$19.99 each: Preschool, Kindergarten, Grade 1, and Phonics. The CD-ROMs come with a 64-page educational workbook and include a learning game, dot-to-dots, movies, and an art study. Flash-Action is a line of electronic flash cards covering the alphabet, numbers, addition and subtraction, multiplication and division, colours and shapes, and two games (Old Maid and Go Fish). Six titles are available for US \$14.99 each. For further information on School Zone Interactive CD-ROMs, and to order, visit www.schoolzone.com.

For more information please circle reader service #23

Web

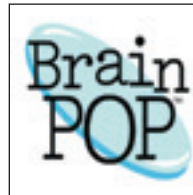


Animal Diversity Web

Created and maintained by the University of Michigan, Animal Diversity Web is an online database of animal natural history, distribution, classification, and conservation biology. It contains thousands of accounts on individual animal species, in the form of text,

pictures, photographs, movies, and sound recordings. The database also features descriptions of levels of organization above the species level, including phyla, classes, and in some cases, order and families. Visitors can access the database and materials free of charge. Visit the site at <http://animaldiversity.ummz.umich.edu>.

For more information please circle reader service #24



BrainPOP

BrainPOP produces animated math, English, science, health, and technology movies for children ages 8-14. Movies covering test preparation, online safety, bullying, and back-to-school issues are also available. Visitors to

the site may watch up to two movies per day, free of charge. For schools that wish to play more than two movies, BrainPOP offers the BP School Pass for US \$134.95, which allows unlimited access for one year on up to 35 computers. Standards correlation and subscription information is located in the Teacher Section of the Web site. Visit BrainPOP at www.brainpop.com.

For more information please circle reader service #25



CyberSafari

Designed by the Children's Web Surfing Alliance, CyberSafari is an annual e-learning and discovery competition that shows kids how to find valuable information on the Web. Players explore more than 100 handpicked

destination sites throughout the Internet. They collect "treasure" by finding the answers to clues written by participating outposts. Answers are located within the outpost's Web site. Players can race to the finish or play at their own pace. Last year, more than 12,000 school team players competed in CyberSafari, with family teams and individuals from 97 countries. The current contest launched on October 18, 2002 and runs through January 10, 2003. The next contest begins January 17, 2003. To register as a team or individual player, visit www.CyberSafari.org. Registration is free.

For more information please circle reader service #26



EcoKids

EcoKids is Earth Day Canada's environmental education program for educators and youth ages 7-12. The centerpiece of the program is the EcoKids Web site, which offers topical information about the environment through interactive

games and activities. The Eco-Info

section presents topics on energy, the environment, science and nature, and wildlife. Fun-n-Games includes printable activities, puzzles, word games, and colouring sheets; interactive storybooks; a gallery of student-submitted drawings; screensaver and desktop wallpaper downloads; and contests. The recently-added "Have Your Say" forum posts questions on environmental issues for kids to read and respond to. There is also an EcoKids Club that schools can join. Membership is free to schools and youth groups across Canada. For further information, visit EcoKids at www.ecokids.ca.

For more information please circle reader service #27



Free Stuff for Canadian Teachers

Free Stuff for Canadian Teachers is a Web site that connects teachers to free resources for their classrooms. In addition to the freebie directory (searchable by category or province), the site also contains inspirational teacher stories, education-related articles, and a free email service. Teachers can also sign up for The Canadian Teacher email newsletter, which notifies you directly when new freebies become available. Visit the site at www.TheCanadianTeacher.com.

For more information please circle reader service #28



The New York Times Learning Network

The New York Times Learning Network is a free service that uses the daily New York Times newspaper to bring current events into the classroom. Updated Monday to Friday throughout the year, the Web site is geared to students in grades 3-12, their teachers, and their parents. Students can use the site to read top stories of the day, take the daily news quiz, play crossword puzzles, practice their test-taking skills, and explore what happened “On This Day” in history. They can also submit letters to the editor, send questions to reporters, and search through the Science Q&A archive. Teachers can access daily lesson plans for grades 6-12, explore current events for grades 3-5, and read up on the latest education news. Parents can enhance their child’s understanding of current events using “Conversation Starters,” or explore the “Family Movie Guide.” Visit The New York Times Learning Network at www.nytimes.com/learning.

For more information please circle reader service #29

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The SIRS Web Resource Center is an evolving collection of free educational Internet resources for students, teachers, and librarians. Lesson plans, worksheets, grammar tools, multilingual dictionaries, instructional materials, and links to educator networks and government institutions are just some of the classroom support tools available. The “Teachers” section provides links to mathematics, arts and humanities, language arts, science, government, history, and special education resources. The “Librarians” section features links to book awards, library associations, online book reviews, online reference directories, and full-text electronic journals. To access the Web Resource Center, visit www.sirs.com/wrc.

For more information please circle reader service #30

TVO E-Learning Centre

TVO’s E-Learning Centre is a comprehensive distance education network that offers four principal educational programs. The Independent Learning Centre (www.ilceei.com) delivers elementary and secondary distance education programs using traditional and online methods, and provides a wide range of courses for adults to earn secondary school diploma credits, upgrade their basic skills, or study for personal development. Eureka! Ask a Teacher (<http://eureka.tvoo.org>) is a unique tutorial service that allows students in all grades to submit homework questions to certified Ontario teachers in real time - from Sunday to Thursday evenings between 6:30 PM and 10:30 PM. CareerMATTERS (<http://careermatters.tvoo.org>) is an interactive Web site that provides information on the education required for various career opportunities in Ontario. The Lifelong Learning Challenge Fund (www.tvontario.org/llcf) offers workplace training in partnership with the private sector and post-secondary teaching institutions. For further information, visit TVO at www.tvoo.org. The Ministry of Education recently transferred

the Independent Learning Centre to TVO as part of its newly created E-Learning Centre. Within the upcoming months, TVO should become a credit-granting agency.

For more information please circle reader service #31

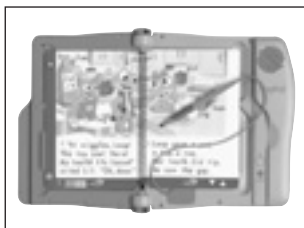
Misc



KidzMouse

Roughly half the size of a conventional computer mouse, KidzMouse is specifically designed for children ages 2-10. Place a child's hand on the back of the mouse, squeeze his or her hand anywhere, and the mouse will click. Two mice can work on one computer at the same time, allowing teacher and student, parent and child, or two students to work together. Six versions of the KidzMouse are currently available, each resembling a different animal character: MollyMouse, BenjiBee, CoolBug, MarinaBug, Colby-T-Rex, and Design Your Own. Colby-T-Rex, the newest member of the KidzMouse family, is the first to feature optical technology. The "Design Your Own" KidzMouse is plain white and comes with a sheet of 30 removable and reusable sparkle stickers that lets kids create and recreate their own characters. KidzMouse is compatible with Macintosh and PC computers. Purchase any KidzMouse for US \$23.95 at www.KidzMouse.com, or through various retail stores.

For more information please circle reader service #32



LeapPad Learning System

Available in English and French, the LeapPad Learning System is an interactive platform that teaches fundamental reading skills to children ages 4-8. The system consists of a tray-like LeapPad, a cartridge, a book, and a "magic" pen. Children place the book on the LeapPad and insert the corresponding cartridge. Using the magic pen, they touch the book's pages to hear stories read out loud and the characters speak. The book also spells words, pronounces sounds, and plays games. The system comes with a 32-page sampler book that introduces all four LeapPad reading levels and features stories from Richard Scarry and Disney's Winnie the Pooh. Over 40 LeapPad books are available, covering topics such as phonics, geography, math, music, science, and social studies. Developed by LeapFrog Enterprises, Inc., the LeapPad Learning System is priced at \$89.99. LeapFrog toys are available at mass and independent retailers across Canada. Visit LeapFrog online at www.leapfrog.com.

For more information please circle reader service #33



Shackleton's Antarctic Adventure

Produced by White Mountain Films and NOVA/WGBH Boston, Shackleton's Antarctic Adventure recounts the true story of polar explorer Sir Ernest Shackleton. In 1914, Shackleton led the British Imperial Trans-Antarctic Expedition, which set out to be the first to cross Antarctica.

During the voyage, Shackleton's ship, the Endurance, was trapped and crushed in the pack ice of the Weddell Sea. After 17-months of struggling for survival, Shackleton led his 27-man crew to safety, without a single life lost. Shackleton's Antarctic Adventure retraces the travels and trials of Shackleton and his men, featuring dramatic re-creations filmed in the Antarctic and a replication of the South Georgia traverse by three of the world's most-renowned mountaineers. Narrated by Kevin Spacey, the 40-minute film opened in IMAX theatres across Canada this year. It is currently showing in Calgary, Hull, Regina, Sudbury, Vancouver, and Victoria, and will come to Edmonton and Toronto in early 2003. An accompanying 24-page Teacher's Guide is available as a free download from www.shackletonsantarcticadventure.com. Produced by the Educational Print and Outreach Department of the WGBH Educational Foundation, the Teacher's Guide is geared to students aged 7-14, and includes background information, activities, and follow-up questions. Print copies are available from The Antarctic Connection, www.antarcticconnection.com, for US \$4.95 each.

For more information please circle reader service #34

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Making Canadian History Together

Historica is offering two Summer Institutes in 2003: Université de Montréal and Lower Canada College will host teachers of grades 9-12, July 2-9, 2003 and Laurentian University in Sudbury, Ontario will host teachers of grades 3-9, July 6-13, 2003. Teachers can find out more about the Summer Institutes and acquire an application form by calling 1-800-567-1867 ext.221 or by visiting Historica's Web site, www.histori.ca. The application deadline for both Summer Institutes is March 28, 2003 and space is limited so apply today!

Mêlez-vous de votre histoire!

La fondation Historica offre deux Écoles d'été en 2003: l'Université de Montréal et Lower Canada College seront les hôtes des participants qui enseignent au secondaire (et au collégial au Québec) du 2 au 9 juillet 2003, alors que l'Université Laurentienne accueillera les enseignants du primaire du 6 au 13 juillet 2003 à Sudbury. Pour plus de renseignements et pour se procurer un formulaire de demande d'inscription, les enseignants sont invités à communiquer avec la fondation Historica au 1-800-567-1867 poste 221 ou à visiter son site Web, www.histori.ca <<http://www.histori.ca>>. La date butoir pour faire une demande d'inscription aux Écoles d'été est le 28 mars 2003 et les places sont limitées - renseignez vous maintenant!



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Par Richard Worzel

Les ordinateurs ont aujourd'hui leur place dans bien des salles de classe au Canada, et le phénomène ne fait que s'accroître. Ils sont maintenant si peu chers que bien des écoles sont attirées par l'idée d'un environnement foisonnant d'information où l'élève travaillerait avec des logiciels, des CD-ROM et Internet. Qui plus est, on assistera au fil des ans à une multiplication des logiciels destinés à aider les enseignants et les élèves.

Mais l'aventure informatique recèle une menace subtile que j'avais dénoncée dans ces pages, dans la livraison de juin-juillet 1993 : « ... étant donné la puissance croissante des ordinateurs et la baisse fulgurante de leur prix, ils deviendront un objet courant et risquent même de proliférer. Saurons-nous en faire bon usage? C'est là une toute autre question. Il ne fait aucun doute que presque tout l'argent consacré à l'informatique dans le secteur de l'éducation a été un gaspillage, qui a eu très peu de retombées positives et parfois des effets néfastes. »

Une étude récente sur les écoles d'Israël parue dans le *Economic Journal* l'a confirmé. Joshua Angrist du MIT et Victor Lavy de la Hebrew University of Jerusalem ont constaté que des élèves de 4^e année qui avaient toujours eu accès à un ordinateur en classe réussissaient moins bien en mathématique que des élèves du même niveau fréquentant des écoles similaires mais dépourvues d'ordinateurs. Ils ont finalement conclu que puisque les coûts des ordinateurs étaient clairement

définis, mais que leurs avantages n'étaient pas évidents, le fardeau de la preuve reposait désormais sur les partisans de l'ordinateur en classe.

Par ailleurs, la BECTA (British Educational Communications and Technology Agency), organisme britannique à but non lucratif dont la mission est d'aider les écoles à se servir de la technologie à des fins éducatives, vient de terminer une étude de trois ans portant sur l'usage de l'ordinateur dans 60 écoles primaires et secondaires d'Angleterre. Les conclusions de cette étude semblent infirmer celles de l'étude de MM. Angrist et Lavy. En effet, la BECTA a découvert que, dans des matières comme les sciences et la conception technique, les élèves du secondaire scolarisés dans des classes équipées d'ordinateurs avaient en moyenne environ une demi-année d'avance sur les élèves qui n'y avaient pas eu accès, et plus de trois quarts d'année d'avance sur ces derniers dans les langues vivantes. La question est donc difficile à trancher : l'ordinateur en classe est-il une bénédiction ou une malédiction?

La réponse se trouve dans deux phrases simples du rapport de la BECTA : « Il n'y a pas de corrélation systématique entre l'usage moyen des TIC [technologies de l'information et des communications] dans une matière et à une étape données [niveau scolaire] et son efficacité apparente pour ce qui est d'améliorer les résultats. Il semblerait donc que ce soit le type d'usage que l'on fait de l'ordinateur qui importe avant tout. »

Par ailleurs, *The Economist* fait la remarque suivante sur les travaux de MM. Angrist et Lavy : « Un des supposés mérites de l'apprentissage assisté par ordinateur — selon lequel il permettrait aux enfants de progresser à leur propre rythme — s'est jusqu'ici révélé faux : un logiciel éducatif est beaucoup moins souple qu'un bon enseignant. »

L'ordinateur est un outil, rien de plus. Un outil certes très puissant, mais qui n'est pas supérieur aux gens qui s'en

servent. Mal utilisé, il peut être fort nuisible. Bien utilisé, il peut présenter des avantages énormes. C'est l'usage qui en est fait qui compte, pas le fait d'en posséder un. Cette constatation a plusieurs implications importantes.

La première est très simple : si vous avez des ordinateurs dans votre classe et que vous ne savez pas trop pourquoi ils sont là, débarrassez-vous-en. À moins d'avoir des raisons claires et impérieuses pour investir temps, argent et énergie dans l'utilisation des ordinateurs, vous gaspillez probablement ces ressources en une période où celles-ci rapetissent comme une peau de chagrin.

La deuxième, c'est que l'on doit intégrer totalement les ordinateurs comme outils qui aident les enseignants à enseigner et les élèves à apprendre, et non pas se contenter de les « greffer » aux méthodes pédagogiques actuelles. Si vous enseigniez sans livres ni cahiers, en vous appuyant uniquement sur des méthodes orales et des techniques de mémorisation, vos méthodes seraient entièrement différentes que si vous utilisiez des manuels, du papier et de quoi écrire. Le passage à l'utilisation des ordinateurs est tout aussi radical, et si vous n'avez pas modifié votre plan de cours afin de tirer parti des avantages particuliers des ordinateurs (et d'en éviter les lacunes flagrantes), vous ne vous en servez pas correctement et vos élèves en pâtiront. Selon Art Lightstone, enseignant à l'école secondaire Holy Trinity de Concord, en Ontario, qui se sert beaucoup des ordinateurs comme complément à son enseignement, « le plus grand défaut de l'ordinateur, c'est sa capacité limitée de répondre à des questions. Il est déjà difficile pour un enseignant d'interpréter la question que lui pose un élève et de bien saisir ce qu'il ne comprend pas. Pour l'instant, un logiciel n'est pas en mesure d'accomplir une telle fonction ».

Troisièmement, les enseignants doivent bien maîtriser l'ordinateur. En particulier

parce que les élèves sont en général plus à l'aise avec les ordinateurs et Internet que leurs professeurs. Aussi, si vous ne connaissez pas toutes les possibilités que recèle un ordinateur, et que vous ne prenez pas les moyens de faire en sorte que vos élèves ne s'en servent que pour apprendre, ces derniers pourraient utiliser la technologie pour tricher, par exemple en téléchargeant des devoirs déjà faits. « Effectivement, les jeunes semblent immergés dans la culture informatique et ils semblent apprendre plus vite que les adultes », ajoute M. Lightstone, « mais ce n'est pas une excuse pour justifier la passivité des adultes face à l'apprentissage des applications informatiques. L'enseignant devrait avoir une idée assez précise de ce que les élèves pourront faire avec l'ordinateur avant que ceux-ci n'y parviennent ».

Ce qui me ramène à mon principal sujet de préoccupation : les ordinateurs envahissent les classes. Ou plutôt : les ordinateurs sont en train d'envahir les classes au Canada, que cela soit une idée

judicieuse ou non, que nous soyons prêts à les utiliser ou non, que nous sachions bien nous en servir ou non. Ils arrivent, parce que des ministères de l'Éducation et des conseils scolaires peu avisés sont devenus de fervents partisans de la technologie, bien qu'ils ne puissent pas expliquer les raisons de cet engouement. Ils arrivent, parce que des parents bien intentionnés croient que leurs enfants doivent savoir se servir d'un ordinateur et doivent donc y avoir accès en classe. On entend même dire qu'un « fossé numérique » se creuse entre les élèves qui ont accès à l'ordinateur et ceux qui n'y ont pas accès, comme si cette lacune impliquait automatiquement un retard.

Mais si l'ordinateur est néfaste pour l'éducation lorsqu'il n'est pas bien utilisé, et si (comme je le crois) la majorité des enseignants en savent toujours moins dans ce domaine que leurs élèves, nous sommes en train de consacrer aux ordinateurs des ressources qui permettraient d'accroître le nombre d'enseignants, d'acheter davantage de manuels ou d'autres outils

ayant fait leurs preuves et dont nous savons nous servir, et qui permettent d'obtenir effectivement de meilleurs résultats. Bref, notre politique actuelle de l'informatisation à tout prix signifie que nous investissons dans des outils qui abaisseront les normes et donneront de moins bons résultats.

C'est-à-dire qu'ils donneront de moins bons résultats à moins que nous ne décidions d'apprendre à nous en servir intelligemment, auquel cas, ils seront une bénédiction — véritables « bottes de sept lieues » pour nos élèves. Vous n'avez plus le choix de décider si vous aurez ou non des ordinateurs dans votre classe. Le seul choix qui vous reste est le suivant : laisser faire et voir vos élèves en subir les conséquences néfastes, ou retrousser vos manches, acquérir de nouvelles connaissances et faire en sorte que cet investissement porte fruit. ☺

Richard Worzel est un spécialiste de la prospective, que vous pouvez joindre à cette adresse électronique <futurist@futuresearch.com>.

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"Two tribal school teachers" reach out to the world

By Jeremy Simon / Editorial Sponsorship

English-speaking people can scarcely imagine losing their language, but many people around the world are facing this disturbing prospect. Regional languages spoken by relatively small population groups, including Aboriginal peoples, risk extinction within a few generations as young people leave them behind.

But what if you could use the same communications technology that threatens aboriginal languages to preserve and teach them? This possibility was not lost on Peter Brand, a 55 year-old Australian-born teacher and advocate of Aboriginal culture. Peter settled on Vancouver Island where he taught for the Saanich Indian School Board for 11 years.

In 1999, Peter was teaching Grade One at LAU-WELNEW Tribal School in Brentwood Bay. A computer lab upgrade to 25 networked iMacs enabled the school to experiment with simple indigenous language teaching tools using iMovie. "We had a Saanich language font created for the Mac, started shooting video of plants and wildlife, and subtitled the footage with Saanich words," says Brand, who worked with John Elliott, son of David Elliott, developer of the Saanich writing system.

Pretty cool little tool

Brand spent the next spring break working with John Elliott and Ken Foster, technology coordinator for the local public school



district. The project was an alphabet book for the Saanich language. Working in HyperStudio, they developed video, sound and text for each of the 40 Saanich alphabet characters. "Then we found a pretty cool little tool," recalls Brand, "a piece of Mac shareware called Vocab. At that time Vocab was a text-only word study application."

"We had a Saanich language font created for the Mac, started shooting video of plants and wildlife, and subtitled the footage with Saanich words,"

Vocab became particularly useful at the tribal school after its developer, Angus Gratton, added a sound feature. Many of the students used Vocab to test themselves in the Saanich language. The ensuing months saw the development of Vocab LanguageLab, a multimedia authoring suite as a companion to the original Vocab application. "By this time the kids were using iMovie to create rich media they could import into Vocab LanguageLab along with sounds, pictures and video."

As Brand explains: "Many Aboriginal people are very visual learners. We found that our Apple equipment enabled students to do things quickly and easily with digital video. Our students began creating media-rich learning resources for their fellow students, written in their own unique orthography, or written language style." Academically, Vocab LanguageLab helped to raise the children's language proficiency by encouraging them to spend more time working on language-related activities.

In March 2001, Simon Robinson, the head of the First Peoples' Cultural Foundation, walked into their computer lab. He said he had heard good things, and asked

for a demonstration. Brand and Elliott gave him the full show, including their vision to make the multimedia language tools Web-accessible.

Final tweaking of the Web application

Under Robinson's leadership at the foundation, the dream became a reality. "The project has taken on a life of its own," Brand elaborates. "Significant investment has been made to bring it to its current form. We're going through a final tweaking of the Web application after beta-testing this year, and we expect it to be in full operation by early 2003."

FirstVoices is an easy-to-use, secure, cost-effective Web-based tool that enables any language group to develop its own authentic and authoritative archiving and language reference resource from within its own community. Text, sound and video can be uploaded to the FirstVoices online database to establish rich language resources.

Says Brand, who lauds Apple for its enthusiastic support in Canada, the US and Australia: "I never imagined that two tribal school teachers plugging away at something could ultimately reach out to the world in this way. Now that FirstVoices is supported by a team of committed language revitalization advocates, it can develop into a very important resource for Aboriginal languages."

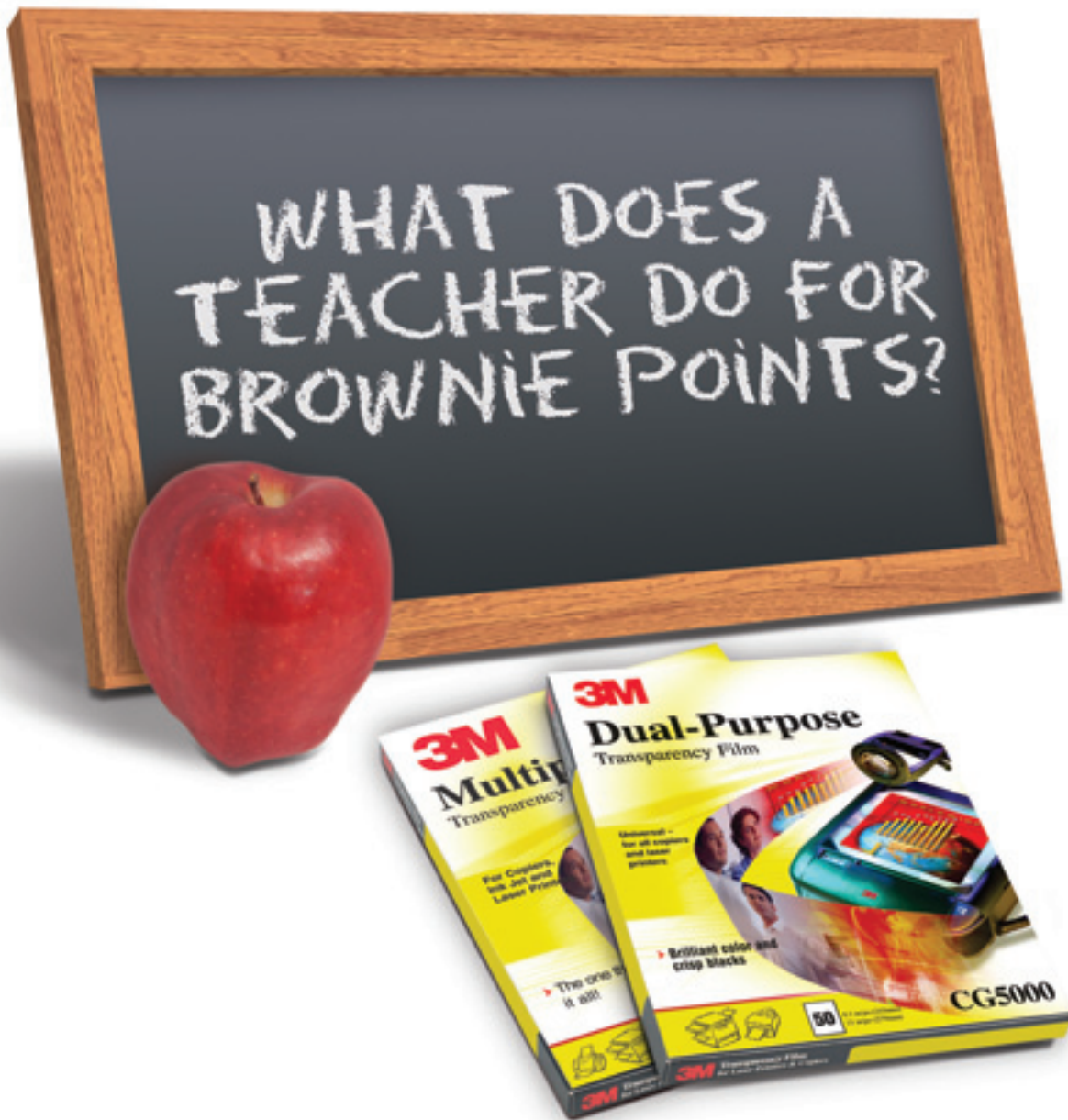
Brand encourages people to check out the site at www.firstvoices.com. 🍏

Jeremy Simon is a freelance writer based in Toronto.

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