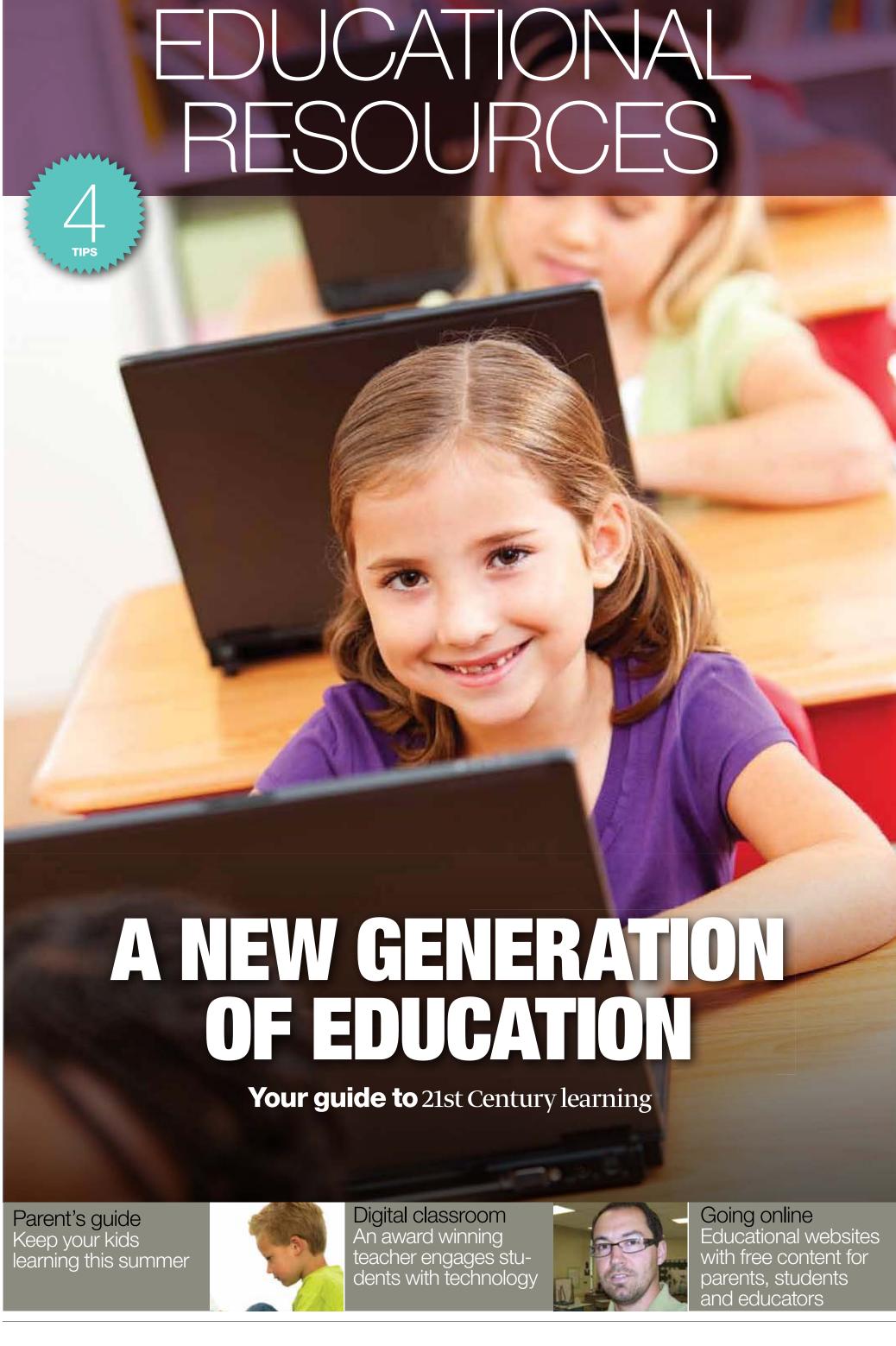
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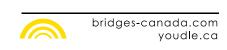
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During most of the last century, the list of required basic skills for high school graduates included reading, writing and arithmetic.

# Technology integration in the K-12 education sector

tudents graduating from high school in 2010 are expected to have developed media literacy, information and communication technology literacies (ICT), critical thinking, communication, collaboration and lifelong learning skills.

University faculties of education have redesigned their courses with these new skills in mind. Integration of ICT's into teaching and learning is a goal for all educational partners. Provincial Ministries of Education have rewritten K-12 curricula to include these 21st century skills, and school systems have invested significant resources to foster and support their acquisition by both teachers and stu-

#### The new necessary tools

This has led to a change in the traditional school equipment list. Hardware such as laptops, interactive whiteboards and clickers are just some of many items which have moved from the "wish" column to the "must have" column on the equipment purchase lists of most Canadian

ICT integration requires infrastructure, curriculum content resources and trained personnel to support their use. Infrastructure must include security measures for data, cyberspace and real space protection for students and hardware. Sufficient bandwidth and access to digital resources like e-books, online database and multimedia subscriptions, and software licenses are also necessary. Consumables, such as printer paper, digital projector light bulbs and ink come at a cost, as do strategic plans for equipment replacement and updating. Financing is a major challenge with which Canadian educators continually grapple.

#### Stepping off stage

Pedagogy has also changed fundamentally. Teaching with and through ICTs has shifted the role of the classroom teacher from "the sage on the stage" to the "guide on the side." Teachers now facilitate students' access to traditional print-based and digital resources, and they must teach students to evaluate the information gleaned from these resources. This new cyber environment of unprecedented information volume requires critical thinking and advanced reasoning skills. In this way, ICT has become a compelling catalyst for change in teaching methods that research on learning has long advo-

ICTs continually evolve as new ones are brought to market and tested for their educational value. Training educators to use them effectively takes time. To capitalize on the positive learning relationship between ICTs, curriculum and teaching practices,





CNIE-RCIE Immediate Past President **Maria Chow** 

#### THREE BEST PRACTICES

#### **Parents**

talk to your children about their online activities, interests and staying safe. Always model good cyber citizenship. Don't leave it all for the school. Teach them strategies such as capturing a screen shot when they do encounter problems.

#### **Teachers**

learning about ICTs is ongoing. Learn from your students and colleagues; stay connected, and remember that it is OK to ask for professional development.

#### School administrators

find the time your teachers need to plan lessons that integrate ICTs. Consistently embrace professional development as the key to successful ICT integration.

professional development (PD) for all teachers in the K-12 system must become ubiquitous and sustained. Finding PD time in teacher timetables has financial implications for school boards. But the research resultsemerging anecdotally and in peer reviewed educational journals such as the Canadian Journal of Learning & Technology (www.cjlt.ca/index.php/ cilt) and the Journal of Distance Education (www.jofde.ca/index.php/jde) are worth the investment because of student success.

#### It starts at home

Parents are their child's first and most influential educator. Their role includes educating their children on the responsible use of ICTs. Whether in real space or cyberspace, good parenting skills are the same. Know your children's friends on Facebook, Club Penguin or IM. Find what websites they're visiting and ask why they are attracted to them. Talk to your children about staying safe in cyberspace. Place the computer in a visible location. Discover how and why their school is integrating ICTs into the learning environment. Teach your children by your example how to be good cyber-citizens.

ICT integration in the K-12 curriculum has positive effects on student learning. Is it worth the time and expense to get it right? You bet.





engaging students using technology.

"...we saw major gains in reading and math and significant improvements across the board."

**Summer learning** 

. How parents can incorporate learning into the things their children love to do.

**Online resources** . Save time and money, great ways teachers and parents are using the web

**EDUCATIONAL RESOURCES** 1ST EDITION, JUNE 2010

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## Continued richness to learning through technology

"As for the future, your task is not to foresee it, but enable it" Antoine de Saint-Exupery

I can still remember years ago, as we were approaching the year 2000, sociologists predicted that teachers would become "facilitators" in the 21st century and that their work would be drastically changed by the proliferation of technology in the classroom.

There is no denying that technology has greatly enhanced teaching and learning in the classroom. We live in a media-rich society in which children, youth and adults navigate freely in a virtual world of MSNs, status lines and tweets and venture in a bountiful landscape of web news, videos and information. However, students can only learn so much online with communications technology which can never replace the profound impact of teachers' human interpretation, creativity and experiences they bring to their students' learning.

This is what teachers have done for centuries. This is what teachers will continue to do in the 21st century, and

The new generation of teachers in Canada embraces technology which is truly their "first language." They face a growing demand to individualize students' learning. Oddly enough, this comes at the same time that standardized tests assume that all students' learning capabilities are equal. Therefore, I am extremely optimistic that standardized tests will eventually fall off the agenda to be replaced with more meaningful processes.

I am excited with this new generation of teachers because they are very much part of the global community. Technology has opened doors on issues related to the environment, civic engagement and social justice. I am proud to have been one of their teachers and mentors, to witness them raise the lamp of learning before they pass it on to the next generation of teachers. Teachers' fundamental role will be to help students develop lifelong skills such as critical think-

ing, problem-solving, information lit-

eracy, global awareness and multiple knowledges. The valued qualities in teachers remain timeless: compassionate, caring mentors and role models who love to learn and to instill that love in their students.

The Canadian Teachers' Federation



**MARY-LOU DONNELLY** President of the Canadian Teacher

is a strong promoter of the positive and appropriate use of technology in the classroom and supporter of media education in the classroom. As one of the founding organizations of the annual Media Education Week along with our partner, the Media Awareness Network, we believe that teachers in the 21st Century will continue to adapt to change and to be agents for change themselves.

To find out more about our work, visit www.ctf-fce.ca. You can also find out more information on a new program that will be launched Sept. 1 that is a student-driven, social action movement designed to promote critical thinking, civic engagement and action towards a sustainable future: www.imagine-action.ca.

> MARY-LOU DONNELLY editorial@mediaplanet.com



#### Traits of a successful

teacher Successful Teachers have high expectations: Every teacher that demands the best from their students, tend to get it.

2 Creativity: They think outside the box to educate their students and focus on each individual student as well as the classroom as a whole.

Ever Evolving, Curious and Confident: They have a thirst to learn and constantly grow their knowledge base. They are curious about not only the classroom but also their surroundings.

4 Make Learning fun and show the fun in learning: These teachers know what it takes to make learning fun and make sure students understand and appreciate learning.

SOURCE: WWW.K6EDUCATORS.ABOUT.COM



**Question:** What does it take to boost elementary school students' interest in learning in rural New Brunswick? **Answer:** A little 21st Century technology and a willingness to take risks pay off big.

#### **CHANGE**

**NEW BRUNSWICK** 

In 2006, L.E. Reinsborough School in St. Dalhousie, New Brunswick, took a chance, piloting the first provincial one-to-one use of laptop computers at the elementary level. The results have been astounding, says Reggie Cyr, 38, a fourth grade teacher and a winner of the 2010 Microsoft-MindShare Learning Report 21st Century Digital Classroom Challenge.

"When we started the pilot, we were just looking to stir up interest in students in new ways of learning. We're in a region that's been hard hit economically. We had a lot of kids who were struggling. We had no idea we were perhaps leading a change in students, teachers, and the teaching process. But in just two years, we saw major gains in reading and math and significant improvements across the board. Now, all our fourth and fifth grade classes have laptops and New Brunswick has launched a new program-NB3-21C—to push greater adoption of technology in the classroom across the whole province."

**Teachers face the biggest** 

#### challenge

"When you think about it, kids' embracing technology isn't that surprising. Computers and the Internet are about transferring data and they all know how to do that from their iPods and phones. It can be a challenge for some teachers. You need a staff that's willing to take risks. You're talking about changing the direction of teaching-that's hard, especially for veteran teachers. We're no longer standing up in front of the class and imparting knowledge. We've let the students take charge and extract the knowledge from us, along with everything and everyone they can access online. It's not loss of control, we've imparted control to the students. That's when real learning starts."

#### At the center of everything

"What technology does is put the classroom, even one in a remote location, at the center of everything. For example, we've been studying Croatian fables, and we were able to discuss them with a teacher in Croatia. We compared our holiday of Halloween with the Jewish tradition of Purim,

#### **PROFILE**

#### Reggie Cyr

Born and raised in Campbellton, New Brunswick, Canada

**Age:** 38 Position: Teacher, L.E. Reinsbor-

ough Education: Sugarloaf Senior High School (Cambellton); Bachelor of Arts and Bachelor of Education

(Saint Thomas

University)

together with a class from an Israeli school. We've got blogs and a wiki site and a morning news and announcements program, broadcast school-wide, all of which are actively produced and managed by the students. They're learning technology, content and responsibility all at the same time. One of my students, who's really into skate-boarding, has started a company marketing his own line of clothes using an entire range of applications to design, source and market his products. And he's still in fourth

#### **Technology facilitates** authenticity

grade."

"One of my rules is, learning must be authentic. When you provide students with real-world issues that challenge misconceptions, you know learning is taking place. Our class was studying health and the human body, and the kids started asking about HIV/AIDS. We contacted a nun who works with AIDS orphans in Africa. We were able to meet and talk with her and the children she cares for online. That interaction brought home the meaning and impact of this disease in the way no book or video ever could."

#### One-to-one laptop access is key

"One of the critical factors is that our laptop use is one-to-one, meaning every student has a computer at his or her disposal all the time. That's a completely different experience than booking an hour at a computer lab. The computer and the world of access it enables becomes an integral part of the learning process. Students can act on whim, which is in the nature of kids anyway.

"I don't think we could ever go back to a traditional classroom model, not that we'd want to. Having experienced the learning power technology brings to the classroom, we're finding new ways to employ it. The only downside—and it's not a negative, just a challenge—is that technology is expensive. So we're always looking for companies and individuals who see the success we're creating and want to partner with us to do more. There's no better investment I can think of in our future."

> **DAVID DUFFY** editorial@mediaplanet.com



LOCAL WINNER

#### **Richmond Hill student** owned the podium at Intel ISEF, world's largest **Science Fair**

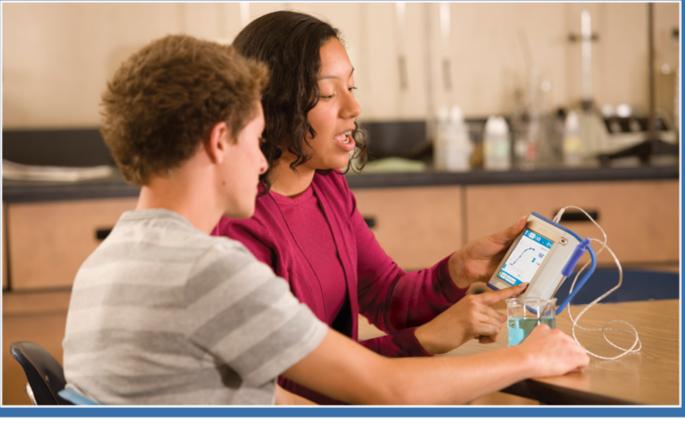
Adelina Corina Cozma, member of Intel ISEFTeam Canada, returned to Richmond Hill after owning the podium at the Intel International Science and Engineering Fair (Intel ISEF), with First Place-Psi Chi, The International Honour Society in Psychology-\$1,000; First Place-Illinois Institute of Technology -\$60,000; First Award of \$1500 for excellence in Behavioural and Social Science, Illinois Institute of Technology; First Place-American Psychological Association —\$1,500; Second Place Grand Award, Behavioural and Social Sciences-\$1,500 for her project Slow it Down to Speed It up: Breaking Through the Window of

Autism. Adelina has been recognized for her achievements from among 1,611 young scientists from 59 countries, regions and territories.

In Canada, Intel has been supporting Team Canada for 13 years in partnership with Youth Science Canada, an organization focused on increasing awareness and involvement of youth in science and technology. Intel believes that fostering a passion for math



## SOOM Science Learning System



#### The SPARK Science Learning System: More than just hardware and software, it's an integrated science learning environment

With its large, full-color display, finger-touch navigation and highly intuitive data collection and analysis capabilities, SPARK completely redefines the concept of easy-to-use - so the focus remains on the learning of science. Its reliable, rugged design makes it easy to hold and protects the unit from drops or rough handling and the large, easily viewable screen

The SPARK Science Learning System includes more than 60 free pre-installed SPARKlabs™ standards-based, guided inquiry labs in a unique

electronic notebook format. These SPARKIabs completely integrate background content, data collection and analysis, even assessment - all within the same environment. Students no longer need to navigate to a separate file for instructions or even refer to paper manuals. Everything students need is right there in context.



is splash resistant.



Over 60 pre-installed SPARKlabs™



10 SPARK Unit Charging



Over 70 Available Sensors



World-Class Professional Development & Support

& Storage Station





Danforth Collegiate and Technical Institute principal David Moore, OCT, says that **Vernon Kee is able** to do what most teachers can only hope to achieve.

especially since Kee is just beginning his fourth year of teaching in the Toronto DSB this fall. Moore's words were part of the nomination package that helped Kee win a Premier's Award for Teaching Excellence in the New Teacher of the Year category.

hat's high praise,

Vernon Kee's teaching approach and philosophy are grounded in his university training and private-sector experience as a professional engineer. He earned his Bachelor of Engineering from Ryerson University in 2001 and worked as a mechanical engineer until 2005-most recently as a project manager in the automotive industry building robotic welding assembly lines.

The science and computer science teacher balances rigorous academics with hands-on real-world applications. His students operate businesses that design and build LEGO robots. They develop, play and critique video games on the Game Boy platform and investigate paintball physics. They debate Mac versus PC and Xbox versus PS3, and they research video game markets and manufacturers.

Equally important, Kee builds technology into every lesson. He lectures with PowerPoint and shows video clips. Students complete computer simulations and work online.

"I want to give my students an edge when they go to university."

Kee gets students to focus on postsecondary opportunities: college, university or the workplace—it doesn't matter. What does matter is engaging them and encouraging them to excel.

Kee regularly seeks feedback to ensure that his program is relevant and engaging. At the end of each Grade 11 and 12 computer science unit, he surveys his students to determine what they understood, if the pace was appropriate and what changes they would like to see for the next unit.

Student feedback is consistent. Keep using technology and keep the activities practical, hands-on and fun.

SOURCE: Professionally Speaking, September 2009

STRATEGIES

**Engaged students make** successful students

Vernon's Kee's strategies to engage students:

- Show that you're a human being first and they will do the
- Use technology in teaching and learning activities. Teach to students' strengths and interests.
- Use real-life and practical examples that students can relate to, such as paintball, video games, anime (Japanese animation) and manga (Japanese comics).
- Work with students outside the classroom in extracurricular activities. They'll have a better chance of getting to know and trust
- Instill a you-can-do-anything attitude in each student.
- Provide a safe haven for students-before and after school, at lunch and during spares.
- Create an environment of mutual respect.
- Connect school with nonacademic life by reinforcing the long-term impact of the choices they make today.

## A parent's guide to summer learning

#### Plenty of options for summer learning fun.

Summer's here, school's out, but that doesn't mean learning stops. Parents now have more options than ever for incorporating educational games, software, toys and online learning into their children's summer fun. Here's a quick look at what's available.

Computer learning games. Kids love computer games. The selection can be dizzying these days, but the good news is, it's easy to find games that teach basic skills such as memory, reading and math as well as help build cognitive capabilities like logic and deduction. The even better news? Many games are free! A quick web search will lead to an array of learning fun.

#### **Software**

Again the selection is extensive and

covers a wide range of subjectsmath, reading spelling, phonics, music, to name a few. They say it's easiest to learn a language when you're young, and several programs help kids develop multi-lingual skills.

#### **Electronic toys**

Great for younger children (including pre-schoolers), interactive toys like cameras, laptops, interactive books and games help build all manner of learning skills. Look for toys that are subjects ranging from art and music

age appropriate, user-friendly and safe—and involve your child in a solving problem or challenge rather than just making noise or talking back.

#### **Online resources**

A host of web sites managed by forprofit companies and not-for-profit organizations offer online learning resources for kids and parents alike. Workshops, downloadable applications, games and other tools focus on

- Games: Lookg for games that teach basic skills: memory, reading, math.
- **Software**: The easiest time to learn a foreign language is when you're young.
- Toys: Toys should be age appropriate, user-friendly and safe.
- Online resources: Some web sites feature social networks that foster learning.
- TV: Lots of kids shows feature educational content.
- **Tutoring**: Programs include online classrooms and individualized instruction.

to history and geography to science and math.

#### **Tutoring**

The Internet has vastly expanded the tutoring resources available. Programs are readily found at all levels preschool, elementary, middle and high school-and can be a particular benefit to families with already overbooked schedules or living in remote locations. They include both online classrooms and individualized instruction in reading, math and other subjects, and are an attractive option for both extra learning or in place of summer school.

Whatever the need, evolving educational technology gives parents today more options than ever!

**DAVID DUFFY** 

editorial@mediaplanet.com







The world's first animated e-reader for children—VTech's V.Reader **Animated E-Book System** 

This learning reader brings books to life with vivid animations, and makes reading fun for your child!

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## FrontRow Supports Student Success & Technology Integration

Each day, schools' investments in people, curricula, and technology are undermined because students miss 25% of what teachers say. That's if they're lucky enough to have a good seat: children sitting furthest away from the teacher may even miss 40%.



Teachers using a FrontRow mic can be understood clearly by all students.

Why? Noisy air conditioning, unfamiliar material or distance from the teacher. Even moderate levels of noise and poor room acoustics can impair student's ability to understand clearly spoken words because they can't reconstruct key words and phrases they've missed. In many everyday classroom situations, even with clearly spoken simple words, students only understand a portion of the words that are spoken which can greatly undermine the learning process. While some students may

be able to cope with a situation where they can only understand a portion of the words that the teacher is speaking, many others cannot. When difficult listening conditions persist for some time, some children will 'turn off' and stop trying to understand the words'...1

Ultimately, changing the room acoustics in all classrooms across Canada would benefit our learners; however, cost prohibitive price tags prevent this from happening. Simple wireless microphones and audio integration receivers make classroom lessons so clear, it's like every student has a front row seat. A FrontRow classroom is a more focused and productive classroom which allows every student access to all audio content being shared in the classroom.

According to a study done by the National Research Council of Canada (Bradley, 2005), the average Grade 1 student hears 17% of what's said by the teacher in a relatively quiet, sterile classroom with simple vocabulary (i.e. dog, cat, etc). Only 9.1% of grade 1 students hear 95% of what's said by the teacher, only 39.9% of grade 3 students hear 95%. These are alarming statistics if we expect students to learn new vocabulary in our highly auditory learning environments. Research shows that allowing students to hear the teacher's message of educational content contributes to better literacy and math score. DRA scores have been shown to improve with the use of soundfield amplification.

Soundfield amplification is a universal design initiative that can help make classrooms more conducive to hearing and listening for all.

#### **Engaging Students**

Engaged, contributing students are easy to find in a classroom with soundfield systems. Most teachers find that even shy readers come alive when using student microphones. FrontRow enhances audio

content which facilitates podcasting as a way of allowing students to share their work with peers, teachers and parents while connecting classrooms for distance learning and class to class collaboration as well as enhancing audio for streaming video and podcasts from the internet.



Even shy students love being heard using the pass-around microphone. When used as a 'talking-stick' the pass-around mic encourages participation and turn-taking.

Technology only counts if it enhances teacher impact and student success. That's where FrontRow's patented technologies like OptiVoice speech clarification, and easy to use microphones come in. A sound system that teachers happily use and that students get more out of is money well spent. "In fact, the immediate results you'll see with little more than 10 minutes of training time are obvious" states William DeMille, principal Lawfield Elementary School, Hamilton, ON. "We see our FrontRow systems as the acoustical hub of our 21st century classroom concept enabling us to reach and engage every individual student."

Technology should facilitate the learning environment creating rich, effective and easy to learn- in environments. "Everyone can hear what I'm saying and I feel like I participate more now" said student Chloe Dobbins, student at St. Jean Baptiste School, Mississauga.

#### **A Province Setting the Stage**

According to André Lafargue – Audiologist Fredericton; PR Committee NBASLPA, the New Brunswick, members of the New-Brunswick Association of Speech-Language Pathologists and Audiologists find it very gratifying indeed to see that a large majority of the school boards in the Province have followed their advice to equip their classrooms (from K to grade 12) with soundfield amplification systems. This tech-

nology benefits not only the children by providing clear and even distribution of teachers' voice within the classroom, but also the teachers themselves who consistently report benefits in terms of their vocal health.

They have witnessed the positive impact of these devices on students' academic performance (better listening skills – clarity of signal for phonics) and behavior management. The New Brunswick Association of SLPA's have also recommended these systems as ways to lighten the load on some patients who are teachers and who suffer from various types of vocal strain disorders caused by talking over excessive noise levels.

Providing a clearer signal is imperative to enable students to master phonetic subtleties of their own or secondary language.

"The cost of a sound field amplification system is roughly equivalent to the cost of a single computer. However, unlike computers, soundfield systems have a lifespan of many years and do not require upgrades."

Dr. Pamela Millett Faculty of Education York University

The Department of Education in New Brunswick (Anglophone Sector) released their latest educational platform in May, 2010: NB3 - 21C: Creating a 21st Century Learning Model of Public Education Three Year Plan 2010 - 2013. Along with data projectors, interactive whiteboards and FrontRow sound systems, classrooms are being equipped to ensure schools and classrooms are ICT-rich learning environments with adequate technical support and Infrastructure. "We are extremely excited and proud to be chosen to work in partnership with the Department of Education for this wonderful initiative" states Karen Stefanishyn, Director of Business Development, FrontRow Canada welcoming any and all other Provinces across the country, School Districts or parent groups.

<sup>1</sup>John S. Bradley, Institute for Research in Construction, National Research Council of Canada

## A Research-Proven Technology

#### Why Classroom Amplification Works

At least 45% of K-12 instruction is verbal, so it helps to make sure kids are understanding every word. Because they increase speech clarity and phonemic awareness, FrontRow sound systems can significantly enhance reading and spelling performance, but math scores are shown to improve as well.

Chantal Kealey, director of audiology and supportive personnel with Canadian Association of Speech Language Pathologists and Audiologists says amplification is especially important for younger children. "The younger children don't have the linguistic background or linguistic knowledge to fill in the gaps, she said. "So they really need to be understanding and hearing everything, or as much as possible, in the proper fashion."

#### Recess for Teachers' Voices

"50% of patients at the Provincial Voice Care Resource Program at Vancouver General Hospital are teachers" reports Dr. Linda Rammage Program Director, Provincial Voice Care Program, Vancouver General Hospital. "Voice problems among teachers represent a rising cause in teacher illness, use of sick leave, stress, & WCB claims."

#### Percent of Teachers Taking Voice-Related Sick Days



Without FrontRow

Because they need to project their voice to back of the classroom, half of all teachers will experience a voice disorder during their career. Soundfield systems eliminate this added strain and most teachers using soundfield systems report more energy and greater teaching satisfaction.

#### O to 100% Attention in 5 Seconds

In a research project by Rubin, Aquino-Russell & Flagg-Williams assessing over 1,600 students in grades 1-3, the behavior and on-task improvements were the major finds. Teachers found increased class efficiencies; better response to statements directed to individuals; fewer direct cues needed; teachers stated they used time more efficiently; teachers needed less repetition; and finally, teachers and students stated classrooms became more relaxed environments.

Listening is hard work, especially for kids, since they lack the vocabulary and brain development that helps adults focus. By making sure that the teacher's voice is clearer for all students, FrontRow improves attentiveness, understanding, and behavior. "It's not just a matter of volume, it's a matter of clarity" said school Principal Andre Paquette of Ecole Alliance St. Joseph in Sudbury, Ontario. "The system is so effective; it's like having a teacher beside you all day"

#### **Connect with Aboriginal Learners**

"In 2006, The Keewatin Patricia School Board purchased 500+ soundfield systems installing them into every instructional area for K – 12 students", states Barb Killbery, Special Assignment Teacher at the board. Aboriginal students constitute approximately 40% of their student population and are an important consideration in their boards' technology and curriculum

It is reported that one in every 2 to 3 children in aboriginal communities in Canada currently are at risk of suffering long-term debilitating effects from middle ear disease, leaving them at a serious disadvantage in terms of social and educational development. Often, misdiagnosed, these children are identified as learning disabled or other identifications that mirror a hearing loss such as ADHD. The likelihood that they will complete school and acquire the skills needed to participate effectively in their communities' becomes dubious if intervention is not provided.

Aside from the obvious benefits of teacher health and student engagement, the main reason for soundfield implementation was research indicating an increase in literacy scores, performance and engagement for all students including 'at risk' populations. Year after year, teachers report their positive feedback with the systems that they are able to manage the class easier, have quieter, calmer teaching environments and stress levels of both the students and teachers have decreased.

#### **Audio Solutions for Student Achievement**

#### Lighter mics. Lower energy use. Ouickest install.

A simple 30% lighter mic makes Pro Digital a teacher favorite and numerous money saving features make it a winner with the districts as well.



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Lasso is the workhorse option for schools with above-average connectivity needs. With four audio input options — plus two more through the superb FrontRow mics — Lasso reproduces

all your media in beautiful, full stereo.
Perfect for media centers, computer
labs, and other demanding
instructional spaces.



#### Now add a FrontRow mic to any media amplifier

Easily add teacher and student voice amplification to existing classroom amplifiers with the FrontRow Symbio.



## The child-friendly way to build student participation

Even shy students love being heard using the pass-around microphone. When used as a 'talking-stick' the pass-around mic encourages participation and turn-taking.













How is technology transforming the modern

Rajeev Mishra Director **Projector Division** Epson America Inc.



Sr. Vice President and Managing Director, School Division, Nelson Education Ltd.



Andrea Prupas Managing Director Canadian School Board Association



#### Question 1:

classroom?

The digital generation, immersed in technology, expects the same digital tools in the classroom they have adopted in their personal lives and the learning environment is evolving to meet these needs. The modern classroom is equipped with projectors and interactive boards, desktop computers, laptops, and internet access-these essential tools engage and excite students, encourage creative and innovative thinking, enable teamwork and collaboration, and provide students the digital skills needed to compete in the 21st Century.

Technology in the classroom is driving a shift to a more student-centric environment where students are empowered learners. Encouraged to innovate, collaborate and think critically, technology is connecting the modern classroom to communities and students globally. Teachers are able to provide personalized anywhere-anytime learning with access to the latest information, leading to a more engaged and successful student. Rich media tools, dynamic content, and issues-based learning all heighten engagement and promote classroom participation, a richer learning experience, increased achievement over time, and rising school retention rates.

**Technology** has opened up the classroom, allowing students to connect with each other, and with resources all over the world. As a result, the role of the teacher in the classroom has been shifting from knowledge provider to knowledge facilitator. Technology progresses so quickly; many students often come to school with extensive experience with these new technologies. One of the challenges in schools across Canada is to ensure that our students have the critical thinking skills to use technology to effectively improve their

#### Question 2:

What trends do you see developing in classroom technology over the next five years?

In technology-rich learning environments, personalized internet access will enable students to conduct research on the web and collaborate virtually with people around the globe. A convergence of technology, like Epson's BrightLink projector, will mean less hardware and proprietary, closed system software will shift to open web-based tools. In a new digital learning landscape, the role of the teacher will change, the classroom will become more inclusive and collaborative, and each learner will be challenged to grasp the fundamentals as well as essential 21st Century skills.

Students will be permitted to bring their personal devices, such as ipads, netbooks and iphones to school. Firewalls will be taken down allowing students full access to content, all in a high speed Wi-Fi environment. Look for stronger home-to-school connections where students will have access to everything they have at school, anytime they want to access it. Students will also have more opportunities to share the learning journey collaboratively and creatively with their peers, using social networking as an educational tool.

There are multiple trends and excellent initiatives in all disciplines, taking place in our public schools across Canada. Some of these initiatives include interactive interfaces (e.g., interactive whiteboards, touchscreens), use of social media (Twitter, blogs and wikis), mobile learning (learning on small portable devices), assistive technology tools for the inclusive classroom (learning and communication software) and technology tools for distance education (videoconferencing). However, due to the fact that technologies are constantly changing, it is critical that their implementation be sustainable in the schools. Sustainability requires funding and support for teacher training and curriculum integration.

#### Question 3:

How would you rate Canada's educational resources compared to the rest of the world?

Some provinces have developed guidelines regarding technology in the classroom; however, to remain globally competitive, Canada must develop a national strategy for technology to ensure our education system is preparing students to compete in a highly skilled global workforce. We must also invest in training programs for the next generation of educators to ensure they are comfortable using and maximizing a wide range of digital tools. Our students and society will be the future beneficiaries of the changes and the investments we make today.

Canada has always had a strong and innovative educational resource industry. 80 percent of the materials in our classrooms are produced and written in Canada. Our students are consistently near the top in international educational performance scores. We think this is a credit to sound curricula, strong teaching and rich learning resources. Canada is a little behind other countries like the UK and Australia when it comes to digital, but we're seeing fast progress in investment, vision, and policy to transform our classrooms towards 21st Century learning.

Canada is one of the top-performing nations in the world in public education and we are leaders in many areas of curriculum. Putting adequate and current technology resources in schools is a constant challenge. Despite this, our provinces have undertaken a large number of excellent initiatives and leading-edge strategies that integrate the smart use of technology to support student learning across Canada. These initiatives are among the many positive benefits of public education in Canada that ultimately ensure our students will be effective 21st Century learners.



**NEWS IN BRIEF** 

CANADA

**Nelson Education is** leading the way in digital innovation through developing resources that engage both teachers and students and provide a safe transition to new media.

Born in the digital information age, students expect interactive technology-based learning experiences, yet according to Project Tomorrow's research a gap remains between how students are able to use technology in school and how they use it outside school. To help schools address the needs of the 21st Century student, Nelson Education Ltd., the leading educational publisher in Canada, has partnered with netTrekker, a leader in the delivery of digital K-12 educational content. Together, Nelson and net-Trekker are offering digital instructional resources customized for Canadian schools to enable education leaders to easily and cost-effectively implement a digital-based learning environment that engages and inspires students.

SOURCE: NELSON PRESS RELEASE

## Move to digital classroom opens new opportunities for learning

Managing a sea change is never easy. When the field is as important as education and the change is as fundamental as the shift to digital technology, the challenge can be especially daunting. As the leader in Canadian educational publishing, publisher Nelson Education Ltd., sees this change as an enormous opportunity to harness new technology and energize teaching and learning in the most traditional of subjects-English language arts.

The realization is based on two insights, according to Nelson Education executive publisher Michelle Kelly. "Students are driving the change," she says. "They are demanding more digital technology in the classroom because their world is all about technology, instant access to information, socialization and collaboration. At the same time, more and more teachers and educators are realizing that technology can be the key to student engagement. They want to use technology as another tool in the

Kelly likens the challenge to that faced by the music industry-managing the transition from traditional delivery vehicles-albums/CDs and

textbooks—to digital media, i.e., the Internet, e-books, MP3 players and the like. In other words, keeping English language learning relevant by organizing and delivering time-tested content in new formats and taking advantage of technological capabilities and the new opportunities for learning the technology offers.

"As publishers, we traditionally made printed books. Now we organize and provide content in a variety of formats," she says.

Nelson Education began the process recasting its research-based, best practice materials into an array of new media components about two years ago. The result is "My Nelson Literacy," a line of books, e-books, audio and video feeds, web pages, pdfs and other components designed for both students and teachers and produced for grades seven to ten.

Again, some key insights shaped the outcome. One was the need for

"Not everyone has access to the same technologies and not everyone has the same comfort level," Kelly says."We tried to make it easy for anyone, regardless of circumstance."

Nelson Education developed the

new materials—and how they would be used—by examining them through the eyes of both students and teachers who, of course, have very different needs and points of view. For the student, the goal was to develop dynamic, current and engaging multi-media resources that align to the curriculum, support different reading levels and offer choice, support and challenge.

Kelly puts it this way: "Students should learn with these materials, not just learn from them. It's easy to find cool media videos from places like youtube and we do use those, but we ensure that all of the content is aligned to the curriculum and is appropriate for students." Students are invited to recommend content and Nelson made a concerted effort to keep learning relevant to the real world-connecting classroom content to current issues. So, for example, audio or video feeds or web pages are used to connect the conflict in a short story or Shakespeare play to similar conflict in current life.

For teachers, the Nelson Literacy program provides a "transition solution"-an array of options for low to high technology users. An online

teaching centre enables teachers to access and deliver course content from a personalized home page and provides professional support. Designed as a "one-stop shop," it uses familiar print and media elements as well as newer technology that extends the print experience.

Kelly says, "The teaching centre has to work for a range of people with varying skills. We've kept a lot of familiar components but added to them. We've emphasized flexibility and ease of use. So far, the feedback from teachers has been very positive."

Seventh grade students and teachers in Newfoundland/Labrador and Nova Scotia will make the switch to the Nelson Literacy system this September. A number of districts in Alberta and Ontario are also piloting or using the program. Doubtless there will be tweaks and modifications made, but one thing seems clear—the march into the digital future in the classroom will continue.

> **DAVID DUFFY** editorial@mediaplanet.com

**NELSON** 

Canada's Learning Advantage

## 21st Century Resources for Canadian Students and Educators!

www.nelson.com



# Technology in the classroom

■ **Question:** What technology can you find in the modern classroom?

■ Answer: The classroom of the Future is here today—Interactive whiteboards, laptops, netbooks, amplification systems, voting response systems, wireless connectivity and mobile devices are becoming more visible in classrooms across Canada. This is all part of the "digital" revolution upon us in education.

#### SHOWCASE

Through these essential classroom tech tools, we are preparing students to compete in the 21st Century global economy. "Our students are growing up in the digital age and instead of asking them to power down in the classroom, we should be working to meet their needs and better incorporate the tools they use every day into our classrooms," says Dr.Chris Spence, Director of Education, Toronto District School Board.

The modern day innovative school would amaze you. Traditional class-rooms are being replaced by state-of-the-art classrooms with interactive whiteboards—a key element of the digital classroom equation. Project based and multimedia creativity tools enable students to experience hands-on learning. Web 2.0 tools that connect teachers and students to leading experts on virtual field trips around the world are expanding students



"...there are many award winning teachers who rise above the call of duty by integrating technology...."

Robert Martellacci, MA, EDTECH President, MindShare Learning Consulting

What does the future hold? Is Can-

Canada has some catching up to

ada leading the way or falling behind?

do on the global stage. We are lag-

ging behind according to Industry

Minister Tony Clement, who recently

announced at the Canada 3.0 confer-

ence a new digital strategy initiative

global knowledge. Teachers are taking on more of a facilitative role and it's not longer about sage on the stage. Students are working on more collaborative group projects and being empowered to take charge of their own learning through technology and

■ Principal leadership is a key

factor in the successful deployment of

■ Team teaching and engaging

in professional learning networks is

essential to staying on top of the latest

**■ Exploring funding** opportunities

through contest and various granting

organizations is an option to access

■ Theming your school as an

"innovative school" will attract "tech

■ Participating in pilot project

opportunities can garner free soft-

technology in the classroom.

funding for technology.

savvy" educators.

having fun!

**FACTS** 

ware and hardware from corporations who are looking for "proof of concept"

and case studies.
■ Be globally minded..."walk the digital talk" to lead your students in the 21st Century.

## Read more on the web:

www.mindsharelearning.com www.cea-ace.ca www.canadianencyclopedia.ca

www.tigweb.org www.learn-canada.org

www.cosn.org

to put Canada back on the global map as a digital leader.

Shockingly, less than 30 percent of teachers are using technology in the classroom. Increased funding for technology and ongoing professional development is an essential component of the success equation. One cannot ignore that cash-strapped school districts prevent many teachers from spurring innovation in the classroom when computers up to eight years old are all that's available.

Despite the many challenges faced in education, there are many award winning teachers who rise above the call of duty by integrating technology in the classroom in creative and engaging ways. Case in point, this year's winners of the Microsoft —MindShare Learning Digital Classroom challenge. Teachers across Canada were encouraged to share their classroom success stories using technology, where they qualified to win classroom technology prize packages.

The explosion of web 2.0 applications and the declining costs in hardware bodes well for education. We are getting closer to the day when every student will carry his/her own portable device and eliminate the need for bulky textbooks.

ROBERT MARTELLACCI, MA, EDTECH

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## Online resources saves time and money



Reggie
Cyr
Helped to bring oneto-one technology
to his fourth grade
class.

When Reggie Cyr's New Brunswick fourth grade class wanted to study HIV/AIDS, he used epals.com to connect with a nun in Africa who runs an AIDS orphanage. It wasn't long before his kids and hers were talking via an Internet video link.

That kind of connection would never have happened even a decade ago, but today it takes only a matter of minutes. With more than 600,000 teachers in 200 countries and territories, the epals Global Community claims it is the largest K-12 learning network in the world. But it's hardly the only one. Teachers and educators today can choose from a plethora of online resources that put all manner of lesson plans, textbooks, interactive tools and teaching aids, and access to teaching colleagues around the world at their finger tips (assuming, of course, the finger is resting on a computer mouse).

### Teachers played a role in details

The companies, institutions and organizations offering easy—and often free—access to online educational resources are almost as varied as the offerings themselves. They include online educational communities like epals or promethean planet.com, which boasts the largest interactive

whiteboard community—designed for and by teachers. Not surprisingly, educational publishers such as Scholastic and Pearson are active suppliers of online content. In Canada, Nelson Education and netTrekker have announced a partnership to deliver digital instructional resources customized for Canadian schools.

Big technology companies (think Intel, Microsoft) have extensive selections of technology-related learning resources. Verizon's thinkfinity.org offers free lesson plans and interactive games and tools from leading educational organizations, grouped by grade, with links to its content partners.

#### Keeping education in mind

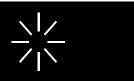
Leading Canadian institutions such as the Canadian Broadcasting Corpo-

ration and the National Film Board of Canada have adapted their content for educational use. The Media Awareness Network, a Canadian not-for-profit, makes available a comprehensive collection of media and digital literacy resources, including some 200 lesson plans. Many web sites have a single goal or focus. Taking It Global connects young people with social issues. Reading Ahead uses social networking techniques in specially designed literacy programs.

Whatever the need, today it's more likely than ever that the answer is just a few mouse clicks away.

DAVID DUFFY to

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GO ONLINE!

There are many great websites that offer free educational material or resources for parents, educators and students. Here are some of our recommendations:

### Schools for a Living Planet:

www.wwf.ca/schools

Designed to help Canadian teachers give their students the knowledge they need to make a difference in our planet's future. Each unit is linked to grade-appropriate curriculum, can be downloaded for free and uses a variety of formats that work with every teaching and learning style.

### National Film Board of Canada

www.nfb.ca/education/en/
Explore NFB.ca and discover more than 1700 production for educators. For each film, discover lesson plans prepared by educators, printable teaching guides, links to curricula and programs of study as well as categorization by grade level.

#### **CBC Learning**

www.cbclearning.ca

Your source for CBC programs for the classroom. Over 600 documentaries, news specials and dramas are available for purchase. Engaging and curriculum-relevant.

#### **News in Review**

www.newsinreview.ca

A video and resource guide subscription series that is a proven, effective, cross-curricula learning resource for Canadian high schools. Now in it's 20th successful season.

#### **CBC Digital Archives**

www.cbc.ca/archives

Discover our 13,000 radio and TV clips, in English and French, online and free of charge—plus professionally written lesson plans for grades six to 12.

#### **TakingITGlobal**

www.tigweb.org

TakingITGlobal is the world's leading online community for young global citizens committed to changing their world, offering a diverse set of educational resources and action tools designed to inspire, inform and involve.

#### TVO Kids

www.TVOKids.com

Developed with educators and tested in schools, TVO's acclaimed web destination for children age two to 11 supports virtually all areas of the Ontario school curriculum (with a special focus on math and literacy) and features a fun and interactive mix of contests, videos and 160+ games and activities—all designed to prepare kids for successful classroom learning.

#### TVO Parents

www.TVOParents.com

Unique content that is often a top pick on Yahoo! Canada's Lifestyle section, TVO's newest web community offers focused, engaging resources that demystify Ontario's education system and empower parents to play a more active, informed role in their children's formal learning.

#### Media Awareness Network – Educational Games

www.media-awareness.ca
This website offers a number of free
animated and interactive games for
children to ensure young Canadians benefit from the Internet, while
being safe and responsible in their
online activities.

#### Reading Ahead

www.readingahead.com

Reading Ahead uses networking environments and focused skill building programs to improve student performance and connect teachers, students and even parents in a new and exciting way.



The New

# Brightlink TM Interactive Projector



Turn almost any wall into an interactive learning environment with Epson's BrightLink 450Wi, the high-performance interactive projector.

\*\*Ultra Practical\*\*



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