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MAGAZINE

**Technology welcome:** Teacher Royan Lee and his Grade 7 students at Beverley Acres Public School in Richmond Hill, Ont., bring their own wireless devices to school so they can collaborate on classroom work.



# IS YOUR CHILD READY FOR 21<sup>st</sup>-CENTURY LEARNING?

**Tim Johnson** learns that today's most innovative schools are equipped with cutting-edge technology, facilitated by inquiry-based theories and even accommodate working from home

PHOTOGRAPHY BY NAOMI FINLAY

**a** T FIRST GLANCE, Royan Lee's Grade 7 English class may not look so different from the typical junior high home-room found in schools a decade or two ago. Located inside Beverley Acres Public School, a low-slung, 1960s-style building in Richmond Hill, Ont., surrounded by curving, suburban streets lined with modest homes of a similar vintage, Lee's classroom features a lot of familiar things: books on shelves, a whiteboard, plastic chairs and backpacks hanging on pegs all along the back of the classroom. But look a little bit closer, or ask a few questions, and you will find that this is a very different space, indeed. For starters, smartphones, which were once seen as a nuisance and banned from classrooms and schools, are more

than welcome here—Lee has an official Bring Your Own Device policy. Special software links together teacher and students, who learn on those devices (as well as on laptops and iPads provided by the school), allowing them to see each other's work. Far from sitting quietly at their desks and learning independently, Lee's students sit together at round tables and are encouraged to collaborate, both through conversation and virtual, online work.

And Lee rarely, if ever, stands at the front and delivers lessons like chalk-handed teachers of the past. Rather, he guides students through the world of information at their fingertips, working together to pursue topics of interest to them while learning important things about research methods and broad concepts.

While some might see such wide-rang-

ing changes as revolutionary, Lee is fairly nonchalant about it. "It's not like *The Matrix*. We're not all in portals, talking in computer code," he says, with a laugh. "But someone who hasn't been inside a classroom since the 1990s would be surprised by the amount of handheld technology, and that it flows around the class like it would in your own home—devices sitting on tables or on top of books, not housed in big terminals. And also that we constantly have the ability to wirelessly project all of our work to everyone's devices, or share it up to the front of the class." Lee acknowledges that all this has fundamentally changed the roles of teacher and student. "In the past, you had to go to the school, the library, or an expert to get information. That's no longer the case."

### **a new environment**

Led by teachers like Lee, the Canadian classroom of the 21st-century is fast becoming a different space than its antecedents from just a decade or two ago.

No longer serving as repositories of information—as a bricks-and-mortar source of enlightenment—schools are now evolving into places where students learn how to access all that's out there, learning virtually and collaboratively. Far beyond just the technology, these learning processes are underpinned and guided by equally revolutionary educational philosophies. It all adds up to an environment of discovery, collaboration and individualization that would've been unimaginable just a short time ago.

Take, for example, the activity Lee was leading on the day that I spoke with him. It was a hot June afternoon, and he noted that students, having been immersed in the technology all year, had gained a good sense of how they learn the best—an awareness known in educational circles as metacognition. Mandated with creating an infographic to display research findings, some had chosen to do so on MacBook Pro laptops, a few on iPads and still others on sheets of paper, using markers. And more than just with the presentation, Lee notes that right from the start, students in his class have a lot of autonomy: They can choose topics that stimulate them, creating their own hypotheses and conducting their own research online and through field questionnaires, then sift through the data and come to their own conclusions. They then share their find-

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ings with the class, with further refinement coming through collaboration with one another. “That’s pretty much my dream situation—when students make executive decisions and understand the connections themselves,” says Lee.

And it’s not just Lee—both students and parents like it, too. Marina Ross, mom of 13-year-old Antonella, says that she has seen vast changes in her daughter this year and that Lee’s English lesson is the highlight of Antonella’s day. She notes that her daughter spends more time and attention on Lee’s assignments and that she has become a much better critical thinker as a result. It’s a brave new world compared to the classes students attended not so long ago. “I was taught in a classroom with chalkboards, textbooks and copy books, and the accuracy of the information depended on how recently they’d purchased the encyclopedias,” Ross says. “But technology is the world that our kids live in, and by using technology, teachers capture their interest, and kids put more time and effort into their work.”

### **inquiry-based approach**

Equally, or perhaps more important than the technology is the educational philosophy that undergirds it all, something known as inquiry-based learning. “In the more traditional experience, it was quite teacher-centred—the idea was that the teacher’s job is to teach and the student’s job is to learn, and that somehow in between those two things some sort of magic happens. So teachers would say, ‘I’ve taught the objectives, and hopefully the natural consequence of that is what kids learn,’” observes Steven Katz, PhD, a senior lecturer in the department of applied psychology and human development at the Ontario Institute for Studies in Education (OISE) at the University of Toronto. He explains that now, instead of being concerned with a teacher’s “coverage” of the material and the curriculum, schools are now focused on learning outcomes, with teachers creating conditions for learning, then using a student’s progress as the main indicator of what should come next in the process.

While traditional models theorize that teaching is about opening a child’s mind and filling it with information—and questions are asked to make sure that a student’s knowledge matches with the material delivered by the teacher—the inquiry-based approach sees a child’s



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mind as a constructor, a creator, and not just a receptacle. Here, says Dr. Katz, the teacher’s role is that of a facilitator, as “lead learner,” asking questions and guiding students down paths of problem-solving and learning, with knowledge being generated rather than received. It’s an organic thing, he observes—humans are natural born problem-solvers, and the goal is to rediscover the curiosity and love of learning that’s so often lost very early in the educational process. “Whenever you go into an early primary classroom, kids really love school. They don’t see it as a pain in the ass, and they’re even upset when they have to miss it. But somewhere along the line, it becomes this laborious chore,” he observes. “In those very early years, kids have a tremendous natural curiosity. The inquiry-based model really capitalizes on the human tendency toward being curious. From an evolutionary perspective, we’re not actually designed to be thinkers, we’re designed to solve practical problems.”

### **collaborative learning**

While this all may sound a bit unfamiliar, eggheaded and even intimidating to the average parent, Annie Kidder, executive director of independent, national non-

profit People for Education, says that they should be open to this new approach. “Some parents may say, ‘Why aren’t they learning penmanship in Grade 2?’ We still yearn for the things we understand and the ways that we learned,” she says. But education, she adds, is a fluid, changing thing, and as research progresses, so does the educational process. Digital literacy, she notes, is now a key skill, and it’s not simply about learning how to weed out the good information from the bad. “So much of our information exists out there on the world of the web, and so much collaboration takes place, as a means to deep understanding,” she observes. “It’s about ‘How do I use this wonderful world that’s at my fingertips to broaden my education?’”

That’s exactly the question that Kristi Kato seeks to answer daily in her Grade 5 classroom at Earl Buxton School in Edmonton. One of a growing number of classrooms within the city’s public school board that benefits from a robust wireless Internet system and collaborative software that includes Google Apps for Education, Kato’s class is, again, far more free-wheeling than classrooms of the recent past—students peck away on smartphones and laptops, often in beanbag chairs or even stretched out on ►►►→



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the floor. “There’s no sitting at a desk and writing. It’s however they feel comfortable, working on any device they feel will help them with a topic. It’s just not a traditional classroom,” she says.

Despite the relaxed atmosphere, Kato says there’s serious work taking place here. During writing exercises, rather than pen and paper, students work on Google Docs, and Kato can view all 22 projects at once and correct mistakes in real time. Students can also work together on the same document at the same time, even from home. A great deal of peer editing takes place, and students can use alternative means to express their learning by blogging or even creating digital movies. As in Lee’s classroom, students can view one another’s work, or Kato can broadcast it up onto a screen at the front of the class (although secure, individual tools are used for testing). Here, says Kato, students have immediate access to information—which is, of course, the reality to which they’re accustomed in their everyday lives—and they have choices about the paths they can take in their learning. She also maintains a website that includes assignments, a calendar and other important classroom information, and students’

work is posted in their own individual online area. Parents have access to both the general site and their own child’s work. (On a broader level, school boards are also moving toward digital portfolios that remain with students all the way through their school careers, leaving them with an impressive body of work upon graduation.) “It’s much more student-centered. I feel more like a guide and facilitator, instead of just dishing out the information,” says Kato.

In his classroom at Beverley Acres, Lee observes that collaboration isn’t done simply for the sake of it. Rather, students profit from seeing one another learn—something that he routinely witnesses happening as he brings the thought processes of his students out into the open for the benefit of all. For example, a student who struggles with math is able to learn by seeing another student who excels at the subject solve a problem. Collaboration, he says, is about much more than simple “group work”; it’s about creating a space, an environment where students build on and synthesize one another’s ideas. “I think back to my own university days, and I just can’t believe that we made it through without reading each other’s essays,” he says. “It’s preposterous! If we were there to

learn, why didn’t we tap into each other’s amazing insights and turn the learning into more of a conversation?”

He adds that while individualization and collaboration may feel like contravening trends, in this case, they aren’t. He uses an appropriate analogy—that of a smartphone: while it’s connected to everyone in the world, it’s also a highly customized piece of technology, tailored to the interests, needs and desires of its owner. “In my class we can do both—diverge, but converge on the big idea.”

### **a digital connection**

One Calgary classroom has taken the big idea and the process of collaboration well beyond the school walls—it’s gone around the world. The Calgary Board of Education, like its counterpart in Edmonton, is very committed to equipping classrooms with current technology. At Battalion Park School, a suburban K-6 school, teachers Tannis Emann and Laurie Renton developed the Battalion Park Library Project, which evolved into the Grade 3 students writing a blog dubbed *Global Grade 3*. Growing from a single video conference with a teacher on leave and travelling in Peru, the class connected with partner organizations Mosqoy and Q’ente Textile Revitalization Society, both Victoria-based non-governmental organizations (NGOs), which facilitated the students’ relationship with a remote Peruvian weaving village called Q’enqo. Responding to needs articulated within the community, students raised funds to create a school library in Q’enqo, lining its shelves with books.

But while the goal was charitable, the process was educational for everyone involved. Students began writing blog posts as a class, and soon these eight- and nine-year-olds began branching out to individual or collaborative small-group contributions, which were woven together to include each of their thoughts. They also took part in Skype chats with people in Q’enqo and, via their teachers, drove traffic to the site through Twitter. Rich relationships formed on three different levels: within the school, between the classroom and Q’enqo, and also with readers from around the globe, with the site receiving hits from 68 countries and comments pouring in from teachers, students, NGO workers and others from places as far-flung as Africa and Australia.

It was a memorable experience for all

involved, to say the least. “The room felt electric on the days that we blogged—you could feel it; it was palpable,” Emann remembers. Particularly powerful was the ability for students to connect with real people (and not just websites) and the knowledge that people actually read and cared about what they wrote—the novelty of writing for a reason. Rather than learning about Peru in a cold, concrete way, as they would from a teacher reading from a textbook, students learned on a much deeper level about the people of Q'enqo, about Peru, NGOs and global relief work, and about writing and blogging and working together on such initiatives, becoming both global and digital citizens along the way. Students drove the work forward with their own enthusiasm, guiding it with their questions and curiosity; they built community around this passion, and unearthed a richness of learning. “We facilitated it, but the students drove the project. I always say that I was the teacher lucky enough to be along for this wild ride,” says Emann laughing.

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Asking for parent feedback, the two teachers received an overwhelmingly positive response. “Blogging is such a unique tool to communicate in an almost unlimited fashion to the world—very powerful,” one parent wrote. Added another, meaningfully: “For a child who has difficulty feeling a part of even those groups of people he interacts with daily, this is a monumental achievement. This year has given my son the entire world. Not bad for one year’s curriculum.” If this is indeed the future of education—if Emann and Renton’s classroom, plus those of Lee and Kato and a growing number of teachers across the country, are in fact 21st-century classrooms—then it seems that we have a lot to look forward to in the future. **CF**

