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Classroom 3.0: high-tech teaching in university

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SPECIAL TO THE GLOBE AND MAIL

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Like many iPhone owners, Kyle Gunderson, a 23 year-old engineering student at the University of Saskatchewan, uses the device for a lot more than talking and texting. For example, he uses an application—from hundreds available at the Apple's iTunes store—to log in and fix his parents' computers. And recently he added iUSask, an app made by his university. "The buzz about the app has been huge all over campus and even in the city of Saskatoon," he says. "People have been taking about it since early April."

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The iUSask application offers students access to a campus map, course information and grades, and the campus library database, among other features. The University of Saskatchewan, in Saskatoon, is the first Canadian school to develop an iPhone app for students. "For years, I'd noticed students walking around with cellphones and when they leave class the first thing they do is flick them open," says Eric Neufeld, head of the school's computer science department, which developed the app. "I wanted to be in those phones so they'd know that our department is a force to be reckoned with."

Along with cellphones, today's students come to class with a bag full of tech gear and a life shaped by the Internet. That means computer science departments aren't the only ones thinking about how technology can help them be front and centre in the minds of today's university students. The explosion of social media such as Facebook and Twitter, coupled with the ubiquity of the Web and tech gadgets, means that universities have to adopt the latest technologies in order to deliver an education that fits with the new generation's life and learning style.

Depending on their school and professor, today's students can download lectures via a school's website or on iTunes U, exchange messages with classmates in course-specific Facebook groups, receive their grades and course materials online, or even complete course work in a virtual environment.

Some initiatives, such as the iPhone app, gain immediate traction with faculty, staff and students. But schools also struggle with how technology should and shouldn't be incorporated into the classroom experience. Even the laptop, a standard piece of equipment for any student, presents challenges and opportunities for teachers and administrators. "Students are coming in with laptops and that can be a double-edged sword," says Dr. Neufeld. "On one hand they can be major distractions in the classroom because students have the chance of going and surfing the Web [during a lecture]" On the other hand, he says, "You used to have to go through a cumbersome process to show a film clip; now I just tell them to go to YouTube."

Dr. Neufeld is obviously comfortable working with technology, but that can't be said for every professor. A recent survey of close to 2,000 U.S. university professors and instructors found that over 69% do not use Twitter in any way and only a little over 20% of respondents said there was a 50/50 chance that they would incorporate it into their teaching within the next two years. Though specific to Twitter, which is a relatively new service, the figures demonstrate that technology use varies from one class to the next. (Mr. Gunderson, the engineering student, says the most ubiquitous piece of technology in his classes is the sometimes coma-inducing PowerPoint presentation.)

"It's uneven across campus whether or not a professor is using technology, and if they're happy with [students] using theirs," says Sidney Eve Matrix, an assistant professor of film and media at Queen's University in Kingston, Ont. "But it's increasingly clear to faculty that students expect technology to be used in courses, and not just in the sciences."

Dr. Matrix, a self-described early adopter of technologies in her teaching, takes what she calls a "buffet approach" to her classes. She uses a combination of Facebook, Twitter, blogs, online videos, web bookmark sharing, and other services to offer a range of options to students. The idea is that they can choose to engage with the ones that fit their preferences. "The value of all the tools is the same," she says. "One, it's for delivering content; and two, it's for connecting people to each other. All are means through which you can push out materials that students need to have in order to do well in the classroom. A certain amount of redundancy is built in because some students will use some [of the tools] and will be opposed to others." Dr. Matrix doesn't think her tech-savvy approach specifically attracts students to her classes, but she says "it creates enormous buzz" on campus among students.

The same is true of the University of Saskatchewan's free iPhone app. Mr. Gunderson heard fellow students talking about it, and the school says it has been downloaded over 1,000 times since being released in early August. (The app has also attracted attention off campus, as evidenced by the downloads coming from Japan, France, Spain, Poland, Egypt and other countries.)

But perhaps the most popular, and controversial, download available to students is class lectures. On one hand, offering online access to lectures is a cost-effective way to increase class sizes or roll out distance learning programs. It also enables students to replay a lecture in order to review specific elements. But it can shift the focus away from in-class discussion and participation, causing students to lose the human interaction that's essential to the university experience.

"[Online lectures]are good for people who want to watch the lecture at a different time, or who can't attend because of other commitments," says Dr. Matrix. "But it's also controversial because it is seen as a disincentive to attend class."

After all, if you can watch a lecture from the comfort of a dorm room then why go to class, especially on a cold winter's day? And if there's no need to attend class, then why live on campus or meet up with classmates for a study group? Balancing face-to-face interaction with virtual communication is tricky for many professors.

Dr. Matrix believes that her use of technology helps underline her importance as a teacher. "If I was standing up there and every word was being recorded and I was afraid that students would never come to class, then it would mean I'm not doing anything else of value," she says. "Face-to-face interaction is an integral part of it; online is just a bonus." She says online is the place where students can engage in a form of "peer-to-peer learning" by chatting, exchanging messages and sharing comments and insights. But for her, the classroom is still king. "The experience of being in a classroom and having that spontaneity and seeing each other's faces and responses — that's really precious," she says.

At Acadia University in Wolfville, N.S., Jon Saklofske, an assistant professor in the department of English and theatre, not only uses technology in his classes, but he makes the effect of technology part of the curriculum. "In literature class we're always dealing with the text and the word, but I want to get my students into multiple literacy mode so they are aware of how different media operate and how that relates to the history of writing or the novel," he says. "We've had great chats about how we used to have diaries and letters and now we have blogs and Twitter, and how those forms change the way we see ourselves."

Dr. Saklofske has also created online environments where students can interact with each other and where he brings texts and themes to life using audio and images. "I don't think it's anomalous to be tagged as a tech savvy English professor," he says. "I'm trying to teach students a number of literacies and one of that number is technological [literacy]"

Just as some professors are more comfortable with technology than others, Dr. Saklofske says it's incorrect to believe every student wants to download lectures or convene a Facebook study group. "If oral participation or written work in class aren't their strengths, then I want to help them strengthen those," he says. "Some of them are really comfortable with technology and others aren't. They help each other." Like Dr. Matrix, he says the interaction with technology primarily occurs outside of the classroom, making it an add-on rather than a complete alternative. "We don't sit in class with all of us focused on screens and not talking," he says.

But sometimes that's exactly what happens in classes at the University of Ontario Institute of Technology—and they're quite proud of it. The school, in Oshawa, Ont., uses an advanced videoconferencing system that enables it to partner with Trent University in offering a joint graduate degree in materials science. The system, called AccessGrid, means students at both schools can earn the same degree and attend classes together without having to commute to a different campus. For example, students in a classroom at Trent, in Peterborough, Ont., will focus their attention on a large screen that shows an instructor located at UOIT.

"There are cameras focused on the audience and the speaker," says William Smith, the dean of science at UOIT. "At each site there are big display screens and multiple windows on the screen so you see every site participating...if someone sticks their hand up at Trent then the instructor can see them and hear their question." Dr. Smith says one of the advantages of the technology is that it enables the two schools to co-operate and offer a better overall program for students. "There's no travel and so the carbon footprint is reduced drastically," he says.

UOIT has also used the technology, which runs over a fibre optic network, to provide seminars for students at schools located across the country. Rather than keeping students away from the classroom, it allows someone sitting thousands of kilometres away to watch a lecture, ask a question and receive an answer in real time. Dr. Smith says the debate about whether or not laptops and other technologies are more of a distraction than an aid reminds him of a similar dispute from decades ago. "We had debate about whether allowing students to use pocket calculators was a good idea," he says, laughing.

That schools have gone from pocket calculators to personal computers and fibre optic networks only illustrates the point that technology marches along, whether a school or instructor pays attention or not. Each fall brings a flood of new students that invade campus with the latest gear and digital skills, and an eagerness to put both to use.

Just a few weeks after launching its innovative iPhone app, the University of Saskatchewan is already being prodded by students to add new features and functionality. "It would be cool if future revisions used social media that most current apps use, such as in-class iPhone chat rooms, note taking collaboration, student voting, shareable lecture videos and more," suggested one reviewer on iTunes.



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