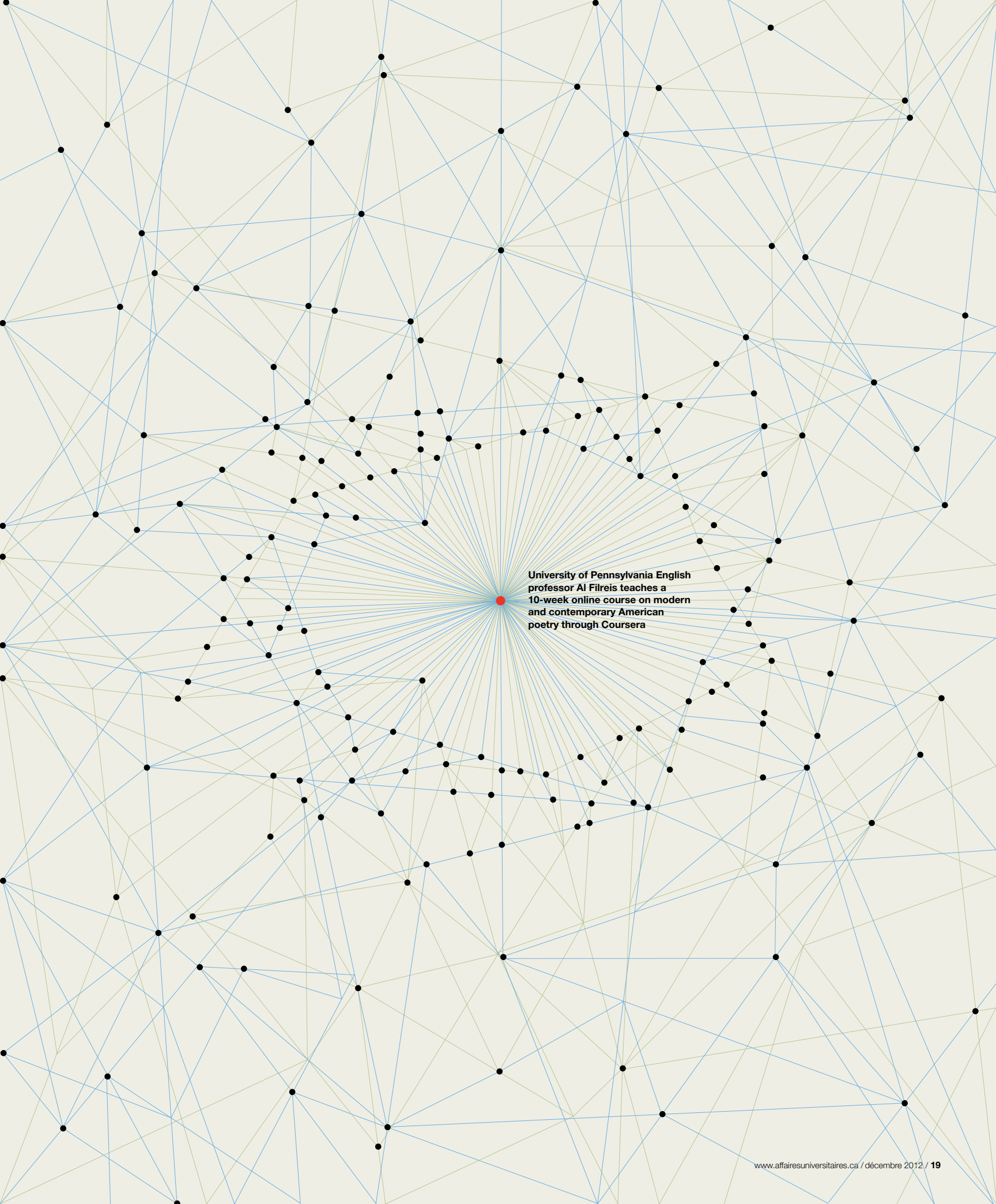
By Rosanna Tamburri

ALL ABOUT MOOCS

Whether you see them as a catalyst for change or mostly as hype, MOOCs are fundamentally different from other forays into open online learning


University of Pennsylvania English professor Al Filreis teaches a 10-week online course on modern and contemporary American poetry through Coursera

It's been 25 years since I last set foot in a university classroom and, to be honest, the thought of doing so now makes me a little uneasy. Not that I'll be in a classroom per se this time round. The 10-week course on modern and contemporary American poetry that I've enrolled in through Coursera is taught solely online.

An introductory email from the instructor, University of Pennsylvania English professor Al Filreis, assured me that I didn't need to know a thing about poetry to succeed in the class. But he too admitted to some trepidation. It would be a challenge, he wrote, to judge how well everyone is doing – all 30,000 of us. We would use online chat groups to discuss the poems and peer-to-peer grading to assess one another's writing assignments. There would be weekly quizzes and four short essays and if I complete them all, I'll get a certificate.

Week one gets under way with a look at the poetry of Emily Dickinson and Walt Whitman. After reading Dickinson's "I dwell in Possibility –" I watch a 20-minute video of the engaging Dr. Filreis and his TAs parsing its meaning. We are invited to do the same on one of the several chat groups that have sprung up on the site. At the end of the week I attempt my first quiz, two short multiple-choice questions. I score 100 percent on the first question and 80 on the second. All in all, not too bad a beginning.

Depending on who you talk to, my foray into online learning is either the vanguard of a new wave that will upend higher education as we know it – or just a bunch of hype. Online courses and degrees have existed for a couple of decades, and universities are increasingly experimenting with blended learning. But this newest crop of online courses, usually referred to as Massive Open Online Courses or MOOCs, is different. Enrolment for a single course can run into the tens and even hundreds of thousands of students. No prerequisites are required and neither are there credits or degrees to be earned. And did I mention that they're free?

Over the past year dozens of elite institutions – including two Canadian universities – have jumped on board. "We can officially declare ... MOOCs as the higher education buzzword of 2012," says George Siemens, professor at Athabasca University's Centre for Distance Education. He estimates that $100 million has been invested in various MOOC ventures in recent months. Enrolment among the three largest providers – Coursera, edX and Udacity – is nearing two million students.

Dr. Siemens, in fact, and a small cohort of Canadians were the pioneers of the model that has taken the higher-ed world by storm. In 2008, he and Stephen Downes, senior researcher at the National Research Council of Canada, launched a course on learning theory through the University of Manitoba. About 25 paying students enrolled in the course, along with some 2,300 online students who took it for free. Dave Cormier, a colleague of Dr. Siemens and manager of web communications and innovations at the University of Prince Edward Island, dubbed it a "massive open online course." (Visit universityaffairs.ca for more on the Canadian connection.)

It's easy to understand the enthusiasm behind MOOCs. Andrew Ng – who along with his Stanford University colleague, Daphne Koller, founded Coursera – describes it this way: "Most people today will never get to take a U of T class or a Caltech class. But I would love to see a future where the University of Toronto is teaching not just thousands of students but millions. And the world will be a much better place for it."

This fall, U of T is offering three courses through the Coursera platform and plans to offer two more in the new year. The University of British Columbia just announced that it, too, has joined Coursera and will offer three courses using the platform, starting next May.

Geoffrey Hinton, a computer science professor who helped drive U of T's decision to join Coursera, has volunteered to teach a course on machine learning. He won't be paid for his efforts, at least not at first. But he was eager to be part of an educational experiment that will allow him to teach thousands of students at a time. Dr. Hinton's typical undergraduate class at U of T consists of about 50 students; his Coursera course has 22,000.

"That will mean in one Coursera course I'll teach as many students as I've taught in my entire lifetime," he says. He believes Coursera may improve the learning experience for his paying, on-campus U of T students, too, because getting them to watch his pre-recorded Coursera lectures will free up class time for more discussion and one-on-one interaction.

According to Irwin DeVries, director of instructional design at Thompson Rivers University, "this whole MOOC movement is a catalyst for change and certainly for dialogue." It feeds into the desire for lower-cost alternatives to traditional higher education, he says. "There's a rising need worldwide – a massive need – for higher education, and maybe this is just one window or access point for learners to do that. I see it as an opportunity."

PODCAST

A poetry appreciation class for 30,000 – what's that like? Hear the author talk about her experiences as a MOOC student in a podcast at universityaffairs.ca

Still, analysts cite some significant hurdles that MOOCs will have to overcome before they revolutionize higher ed. "This is the first stage of the Internet happening to education in the same way that the Internet happened to media, to music and to movies," says Dr. Siemens. "It has the potential to be quite substantial," he believes, but much needs to be addressed before it really will be "transformative."

For one, dropout rates for MOOCs are exceptionally high. Dr. Siemens estimates that about 10 percent of registrants in his MOOCs (albeit smaller versions of the high-profile U.S. type) complete the course. Coursera's Dr. Ng gives figures that are in the same ballpark: of 104,000 students who enrolled in his online machine-learning class last year (an earlier iteration of the Coursera version), 46,000 submitted at least one homework assignment, 20,000 completed a substantial portion of the course and 13,000, or 12.5 percent, passed.

Another issue is that the technology used to deliver MOOCs is underdeveloped and isn't as user friendly as it needs to be, although this could change quickly now that edX has pledged to make its platform available free of charge. And, a recent story in the *Chronicle of Higher Education* uncovered dozens of incidents of plagiarism among participants in some Coursera courses. (A few participants in my poetry course also alleged that portions of some essays they'd graded had been plagiarized.)

But perhaps the biggest stumbling block for MOOCs is the lack of an accreditation system. While the major providers offer a certificate to students who successfully complete a class, none, as yet, offers credits that count towards a degree. Until that happens, labour markets have no means of evaluating the value of such courses and relegate them to the realm of continuing education, Dr. Siemens says.

On the other side of the ledger, there's another problem: none of the providers has devised a way of making money from MOOCs although they have floated some ideas. Coursera and edX are thinking about charging a modest fee to issue non-credit certificates. Coursera has speculated that it could act as a headhunter, supplying names of its top performing students to potential employers; Udacity already does so. "This is something we believe employers would be very willing to pay for," says Dr. Ng.

While they're waiting to make money, traditional universities may have other motives for joining a MOOC consortium. Dr. Siemens believes bricks-and-mortar universities want to win back learners lured away in recent years by for-profit online institutions. He sees other advantages, too. MOOCs give universities the same intangibles that a well-regarded research program does: prestige, reputation, international recognition and an opportunity to provide a public service. Now that top-tier U.S. institutions have joined in, others will have to follow. "You need to be seated at the table where the conversations are happening," says Dr. Siemens.

MOOCs can also expand the student-recruitment pool and boost enrolment of paying students. Alec Couros, associate professor of educational technology and media at the University of Regina, says his MOOC courses have drawn students from a much broader geographic area than would otherwise be possible, and some have returned a second time as paying, for-credit students. "There is great value," he says, "in giving something away for free."

Still, he thinks that MOOCs pose little threat to traditional universities for the time being, especially when it comes to large, high-profile institutions. The pre-recorded online lecture format remains rudimentary. The lack of accreditation is a huge issue.

But what if the courses improve over time? And what if schools like Harvard and MIT start offering bona-fide, low-cost credentials? That could pose a threat to small- and mid-sized Canadian institutions, says Dr. Couros. "Understanding that now a big player could come in and run any one of these first-year classes that's ... as good if not better than the type of thing you can build locally, I think universities really have to start paying attention to that," he says. "As the credentials become more and more available, there's going to be someone in Estevan [Saskatchewan] who thinks, 'I could drive the three hours to the University of Regina or I could do this totally for free.'"

If nothing else, Canadian institutions will be forced to start thinking about how to make their courses more appealing to students, especially their super-sized first-year classes. "I still think it's a long way away but for many universities," says Dr. Couros, "it's really a wake-up call for the way we facilitate courses."

Mr. Cormier, the UPEI web communications manager who coined the term MOOC, predicts that it won't be too long before the major MOOC consortia begin charging for credentials. That would signal a new business model for education that allows massive accreditation, he says. "I don't

Major players

UDACITY: The MOOCs phenomenon was kick-started by Sebastian Thrun, a world renowned robotics expert and computer science professor at Stanford University, and two of his colleagues. Their 2011 online open-access class on artificial intelligence drew 160,000 students from 190 countries. Buoyed by the success, the three launched Udacity in early 2012 with the backing of venture capital. Udacity works directly with professors instead of institutions to offer 16 courses, mainly in computer science and math. For a fee it allows students to write final exams at one of Pearson VUE's test centres located in 175 countries. It has enrolled 800,000 students, issued 50,000 certificates (most of them non-credit), and placed 20 students in jobs (www.udacity.com).

COURSERA: One of the fastest-growing MOOC ventures, Coursera was launched last April by two Stanford University computer science professors, Andrew Ng and Daphne Koller, in partnership with Stanford, Princeton, the University of Michigan and University of Pennsylvania. In July, the University of Toronto became the first Canadian university to throw its hat in the ring, joining 11 other A-list universities (such as the California Institute of Technology, Johns Hopkins and Duke) to sign onto the Coursera platform. The University of British Columbia joined this fall. Coursera now offers more than 120 courses in medicine, business, science, even poetry. The for-profit company, backed by $16 million in venture capital, has more than one million learners enrolled from 196 countries. Almost 40 percent of the students are from the U.S., by far the largest segment. Then come Brazil, India, China, Canada and the U.K., each accounting for between four and six percent of enrolment. Coursera has arranged face-to-face "meetups" for its students in more than 260 cities, including Toronto (www.coursera.org).

EDX: Ivy League heavyweights Harvard University and the Massachusetts Institute of Technology have teamed up behind edX, a venture they launched last May with $60 million in funding from the two universities and philanthropists, including a donation from the Bill & Melinda Gates Foundation. The University of California, Berkeley joined in July. EdX, unlike Coursera and Udacity, operates as a non-profit concern. One of its goals is to conduct research on how students learn and on how technologies can facilitate teaching strategies for both online and on-campus students. This fall, it is offering seven courses, mainly in computer science and science. Some edX students have the option of writing final exams at Pearson's test centres. (www.edx.org)

think this is revolutionary from an educational perspective; I think it is from a business perspective." And that could begin to eat into revenues of Canadian institutions. Small seminar classes would be safe, but large first-year lectures could come under threat. "It's not that universities are going to die," Mr. Cormier says. "It's another chink in their armour."

Even the accreditation problem isn't insurmountable. Athabasca's Dr. Siemens notes that some of his MOOCs students have managed to obtain transfer credits for his courses through another university. For example, a PhD student from Israel arranged to have her assignments graded by professors at the university where she was enrolled. Georgia Institute of Technology allows some of its master's students to do the same. Recently, the online arm of Colorado State University said it will provide transfer credits to students who complete a Udacity computer science course and pass the exam.

Still, Alex Usher, president of Higher Education Strategy Associates in Toronto, remains skeptical. Students go to university not just to get an education, he notes. They go to meet people, socialize, form networks, get a job. "People are buying the permanence of a university. An employer has to be able to recognize the name as quality."

Mr. Usher sees one vulnerable spot: continuing education. "It will be disruptive in that segment, but for most universities that's a pretty peripheral business," he says. Nevertheless, Mr. Usher admits he's spoken to several university leaders who are nervous: "There are a lot of university presidents who believe there is this tsunami coming."

And they have reasons for thinking that way. When music, news and movies migrated to the web, those industries were damaged, in some segments irreparably. Dr. Siemens believes the disruptive effect on higher education will be far more muted. MOOCs work well for the 10 percent of highly motivated, independent learners who are likely to succeed regardless of circumstance. But the remaining 90 percent who need guidance and assistance will continue to need the support structures that universities provide, he says.

Cheryl Regehr, U of T's vice-provost, academic programs, agrees. She says MOOCs provide an easy and cost-effective, low-risk way for people to expand their knowledge but for the most part they are short, non-credit "pieces of courses" that can't replace the university experience. "I don't see that changing anytime soon."

For universities that want to test the waters of providing online learning, MOOCs may also be a low-stakes gamble. An analysis by the Observatory on Borderless Higher Education, a research firm, says many previous attempts by traditional universities to offer online learning have failed. "Joining consortia is a rational way for universities to share the cost and reputational risk of online provisions," write William Lawton and Alex Katsomitros in a recent article for the firm. Like Mr. Cormier, they argue that the major disruptive effect of MOOCs won't be on postsecondary education but on the way it's funded. MOOCs shift the cost away from students to institutions and potential employers. "The modus operandi of the traditional [higher ed] sector is taking a lot of money from a controlled number of students," they write. "With MOOCs it is charging hundreds of thousands of students a minimum fee."

Udacity founder Sebastian Thrun, speaking at a recent online learning conference, acknowledged that online learning is better at some things than others. It isn't well-suited for mentoring students, he noted. On the other hand, it lowers the cost of learning and, by making it available on mobile devices, brings education into the homes of people who wouldn't have access to it – like the Afghan soldier or the single mother or the thousands of other Udacity students the world over who have emailed Dr. Thrun to tell him how his classes have changed their lives.

Online education puts teaching at the forefront of elite institutions, where it has typically taken a back seat to research. And it makes higher education a lifelong endeavour for people, something that traditional universities have shown little interest in doing. "Online has transformed every industry that I know of," says Dr. Thrun. "Online will massively transform education to the betterment of our students." UA

Rosanna Tamburri is a regular contributor to *University Affairs* and winner of the 2012 Award for Excellence in Education Journalism, given by the Canadian Association of University Teachers. She is still enrolled in Coursera's online course in American poetry.