Strengthening Ontario's Centres of Creativity, Innovation, and Knowledge

Opportunities for Massive Open Online Courses (MOOCs) in Ontario

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As part of its response to the Ministry of Training, Colleges and Universities June 2012 discussion paper, Strengthening Ontario's Centres of Creativity, Innovation and Knowledge, Contact North | Contact Nord shared its initial thoughts on how the ministry could support innovation through online learning in July 2012.[1] This rich area of educational opportunity is changing fast and is the scene of some important and productive experiments.

In the next installment of Contact North | Contact Nord's contribution to this dialogue within Ontario's post-secondary sector, we will examine today's most talked-about phenomenon in online learning, the massive open online course, or MOOC. We explore some of the major features of MOOCs and the consortia that are introducing them and we identify opportunities for Ontario's post-secondary sector in which the ministry, in collaboration with the sector, can clarify and support Ontario institutions as they consider the potential and the challenges of MOOCs.

What is a MOOC?

MOOCs build on decades of progress in distance and technology-enhanced learning, but they also break with more traditional online learning practice in important ways. Though still in their infancy and unlikely to be right for every student, MOOCs have had an impressive beginning and are attracting the support of some of the world's most prestigious educational institutions.

The Atlantic has labeled Massive Open Online Courses as "the single most important experiment in higher education."[2] The first MOOC was a Canadian innovation, developed and delivered through Athabasca University. George Siemans' and Stephen Downes' course "Connectivism and Connective Knowledge" was presented in 2008 to 25 tuition-paying students at the University of Manitoba — and to another 2,300 students from the general public who took the online class free of charge. Continuing the Canadian thread in the MOOC story is the inclusion of the University of Toronto among the 15 members of Coursera, one of the consortia of prestigious universities offering MOOCs.

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1 http://www.tcu.gov.on.ca/pepg/publications/DiscussionStrengtheningOntarioPSE.pdf

2 See Weissmann, Jordan "The Single Most Important Experiment in Higher Education," *The Atlantic*, June 18, 2012, at http://www.theatlantic.com/business/archive/2012/07/the-single-most-important-experiment-in-higher-education/259953/

MOOCs truly grabbed the world's attention in February 2011, when a Stanford University professor teamed with a Google vice president to offer a free, open, and Internet-based course on artificial intelligence. It covered the same material as the course at Stanford and attracted more than 160,000 non-credit students from around the world. Student reviews of the course reflect that the experiment of education at massive scale was a success.

The team of instructors went on to develop the concept in the startup firm Udacity, with venture funding. Another Stanford-inspired and well-funded startup, Coursera, soon followed, signing non-exclusive course content deals with an impressive lineup of prestigious universities, including Princeton University, Stanford University, the University of Pennsylvania, the University of Michigan Ann Arbor, and the University of Toronto. Meanwhile, Massachusetts Institute of Technology (MIT) and Harvard University created edX, with UCBerkeley as the first additional institution.

The characteristics of this first-generation of MOOCs include:

- Suppliers: MOOCs are being offered by elite North American universities, mostly working in consortia, to very large classes of students from around the world.

- Content: The first MOOCs featured computer science and engineering, but the offerings have now expanded into the social sciences, humanities, and broader sciences. Fall of 2012 will see a greatly increased variety of courses as the consortia launch their new offerings.

- Pedagogy: The content and teaching strategies are similar to that of other online courses, including video lectures, PowerPoint presentations with narration, discussion groups, readings, and quizzes, and sometimes the content replicates that of the campus-based course offered at the university.

- Assessment: Machine applications or peer-to-peer marking are most often used for assessment. Students do not have to submit assignments to remain in course, but they do have to in order to receive any recognition of completion.

- Credentials: No academic credits are awarded for completion of a MOOC. Some institutions offer certificates of completion, often for a nominal fee, but these are supplied without mention of the originating university. This means the credential will state Artificial Intelligence – edX not Artificial Intelligence – MIT. The issue of credentials is under continuing discussion among and within the universities, although some have stated that MOOCs will never be given equivalent credit to an institutional course.

- Cost: The courses are free to the students, who can then participate according to their needs and interests if they do not want any recognition of completion. The major consortia listed above have all been substantively funded through university funds for edX and with private funding for Udacity and Coursera. The economic model to support the courses is also a point of continued speculation and discussion.

As typically offered today, a MOOC is a course where the participants are distributed globally and course materials also are dispersed across the web. Enrolment is open and free and is intended to be exceptionally large by traditional standards, often in the tens of thousands and sometimes passing 100,000.

Opportunities for Ontario

MOOCs are an experiment, but an important one. Even in emergent form, they are one of the boldest developments in post-secondary education in decades, an idea that deserves thoughtful attention and support even if the undeniable hype surrounding them triggers suspicions of yet another educational fad. The ability to teach, successfully embodied in the MOOC model, even if only for some subjects and some student populations, would be a breakthrough in educational economics and accessibility.

The University of Toronto's decision to participate with Coursera in the design and distribution of MOOCs introduces MOOCs as a subject of Ontario educational policy and practice. The emergence of MOOCs raises questions for those currently financing and providing classroom-based and online learning. Questions to consider include:

1. Should Ontario's colleges and universities get involved with MOOCs?

To quote The Atlantic again, MOOCs are the most important experiment going on in higher education today. Ontario's colleges and universities need to be a part of the further evolution of a concept that has strong Canadian origins. MOOCs might indeed prove disruptive to established online and traditional post-secondary learning in Ontario and Canada, but that disruption will happen whether or not colleges and universities in Ontario choose to take part in the process.

2. How might Ontario institutions participate?

While joining the new ventures directly might be right for some Ontario colleges and universities, others may wish to contemplate alternative commercial or consortial ventures aimed at specific student populations, or simply pick and choose among techniques that prove themselves in MOOC settings. The MOOC project will bring new course delivery platforms, learning content, and assessment tools that could help traditional online programs control costs and faculty workload while still preserving more intimate study relationships. It is important to note that it is exclusively universities who have been involved in the American consortia to date.

3. How might these courses affect online learning in Ontario?

MOOCs will find their place in Ontario's educational landscape. They are free, they permit different levels of student engagement, they come with excellent academic pedigrees, and many can be conducted at the student's chosen pace. All of these factors will make them attractive to a variety of learners, drawing away at least some students from more conventional online and campus-based study.

However, the instructor interaction that distinguishes today's online post-secondary programs from MOOCs will remain attractive to many students. So will Ontario's colleges and universities' ability to understand and respond to local circumstances and workforce needs.

Local campuses of colleges and universities might provide MOOC students some of the ancillary services — tutoring, assessment, credentialing — that are weak points in today's MOOCs, effectively creating a new form of supported independent study. Finally, tools and techniques applied in MOOC courses, such as automated or peer-to-peer grading, could improve the productivity and effectiveness of Ontario's online programs and courses.

4. What is the biggest pedagogical challenge facing MOOCs?

Perhaps the greatest unanswered question is whether such network-enabled peer and tutorial support can fill the instructor interaction gap. We don't really know how well these practices will work or what best practices might be, but research into just these questions will be a core concern of MOOC ventures and their academic partners, and could be a fruitful way to improve scale without sacrificing quality.

5. How might Ontario leverage this new capability?

Ontario has an interest in seeing that all online learning is of high quality, is marketed accurately and widely, reflects curricular and student needs, and produces credentials that students can use across the province, and potentially across jurisdictions, and academic programs. Seeing to it that MOOCs help advance these interests is a good reason to consider joint intra- and inter-provincial coordinating action under the guidance of provincial and perhaps even national online learning strategies.

The Ministry of Training, Colleges and Universities could bring together interested colleges and universities to consider how post-secondary education in Ontario might best respond to the

opportunities offered by MOOCs. This consideration could be done in the context of the clear and strong market advantage that the current high profile MOOC consortia have in the global marketplace and the difficulty that Ontario colleges and universities, working on their own, would encounter in creating a profile.

Among the possibilities that might be considered are:

- Creating MOOCs that could be used as introductory courses for students interested in attending an Ontario college or university. These would be free and not award credit, but may not reach the definition of "massive."

- Creating online courses that are offered as credit courses for their own students or throughout Ontario, but modified to be available as MOOCs globally.

- Developing a group offering in a specialty in MOOCs – such as in health sciences, mining, Aboriginal cultures, or other areas of strength that might be offered through one of the existing consortia.

- Providing student support services for those taking MOOCs, including tutoring and placement.

- Developing a group process of accreditation of MOOCs, integrated with the credit transfer agreement currently being negotiated among colleges and universities in Ontario.

- Outlining the role for colleges in the adoption, adaption, crediting, and creating of MOOCs.

- Sponsoring research into the effectiveness and economics of MOOCs, how they can benefit institutions who do not participate in the already highly competitive field of developing and offering MOOCs. Particular attention could be paid to the college sector in Ontario as, has been noted above, the MOOC consortia participants are exclusively universities.

- Supporting the development of an online learning strategy that gives specific attention to the incorporation of MOOCs into post-secondary education.

An Experiment

MOOCs are first and foremost, experiments. It is premature to declare them victories or harbingers of a new future for higher education. That said, they are experiments of exceptional importance to post-secondary education, for a number of reasons:

- Scale. The new MOOCs are a serious effort to realize an old, but often frustrated, ambition of online learning: to educate truly large numbers of students in demanding, high-quality courses while achieving economies of scale. MOOCs are experimenting with many techniques for doing so, including automated grading, peer grading, and social network-based study groups and tutoring services. The pedagogical and technological fallout will bear close watching. At least so far, MOOCs seem to be reaching their ambitions of scale: Coursera alone has enrolled 1.6 million students since its inception in January 2012.

- Economics. The MOOC model presents contradictory pressures on institutional revenues.

- Cost. Students can enroll for free in a MOOC and deprive their home college or university of revenue. But students want credits and so the home institutions can charge for assessing MOOC equivalency for granting a credit.

- Revenue. Students registered in a MOOC through the University of Toronto may also want recognition of completion which can be offered at a nominal fee. With potentially 10,000 students asking for recognition at $50 each, this can provide substantial revenue.

- Services. Colleges and universities may also be able to establish support services, on a cost basis, for students taking MOOCs who require tutoring, placement, counseling or remediation.

- Collaboration. Colleges and universities can take components of MOOCs and integrate them into their online, hybrid, and face-to-face courses as long as they are appropriately acknowledged. This gives colleges and universities access to a myriad of high-profile open educational resources at no cost.

- Prestige. The new MOOC providers are from among the higher education elite. The importance of this fact in overcoming prejudices against online learning cannot be overstated.

- Global. The MOOC phenomenon is truly global. Central to the MOOCs' appeal to star-calibre lecturers is the idea that they will reach an audience that is not bound by geography or economics.

- Disruption. MOOCs are being pioneered by the biggest brands in North American higher education, joined together in powerful consortia with substantial funding. Given this early ownership, it is hard to imagine a strong role for other, less well-known colleges and universities. They may join the already-established groups or form ones more targeted geographically or to specific groups of students, such as health professions. Other colleges and universities may benefit from crediting and adapting the resources of these early leaders, but careful strategic thought would have to be given to their entry into the development and delivery of MOOCs.

Looking to the Future

Have we seen this movie already? Are MOOCs just stimulating "irrational exuberance" of the type that characterized all too much of the education scene in the early days of the Internet?

We hope it is clear that though there are risks in embracing the MOOC phenomenon, there are greater risks in ignoring it. Though flying now at the top of the famous "hype cycle" and barely in their infancy, MOOCs are attracting talent, investment, and premium institutional backing, while offering an amazing value proposition — free! — to millions of learners around the world. The remarkable number of learners who have already sampled the wares testifies to the interest in the concept and the possibilities of its sound implementation. One of the challenges is defining the economic value model for colleges and universities.

All this suggests that MOOCs will steadily improve, much as online learning has improved over the last decade. Whether MOOCs will utterly transform post-secondary education in their current form is not really the question; rather we should ask what is the role for the majority of Ontario colleges and universities in a field that is already 'owned' by some of the biggest names in American education. How can these courses be integrated into Ontario education so as to benefit both the students and the institutions? Might a consortium of Ontario colleges and universities adapt the model of some US institutions by working together to offer online courses that provide credit to their own students but are provided globally as MOOCs?

MOOCs are likely to impact costs, revenues, articulation, credentialing, and pedagogy for online programs and their revenue streams. Whether harmful or helpful, those impacts will call for a lot of adaptation.

The possibility of radically cheaper extra-institutional educational alternatives has become sufficiently real to become another of those factors, like cost trends and student demographics, that weigh in the strategic balance. The key to preparing for MOOCs is to incorporate them into planning and strategy at all levels. Ideally, the Ministry of Training, Colleges and Universities could work to harmonize these strategies so that collectively it fosters credit transfer and leverage the benefits of MOOCs to both students and the province's colleges and universities.