

Letter from the Editor-in-Chief: The MOOCs Are Coming

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Chances are, if you have not heard about MOOCs by now, you will soon. In this time of budget tightening at colleges and universities, schools are looking more and more at online offerings. There have been recent headlines about the packaging of free courses from universities like MIT and Stanford and the growing number of educational videos from the Khan Academy. We have become used to seeing free online lectures on YouTube and in iTunesU. But, can we use these online classes to create virtual learning communities, providing global access to course that are affordable, tuned to learning outcomes, and that lead to some level of certification of its participants? This is not a vision of the distant future. This year there are a couple hundred courses, called MOOCs, taking place with tens of thousands of students from around the world in each course. In this letter, I will describe these MOOCs and their history. In a future letter I will address the question of how one can get one hundred thousand students in one class to learn.

A MOOC is a Massive Open Online Course. It is an open, free to many, course delivered online, ideally with no requirements or prerequisites to join, taken by potentially thousands of people from all over the globe. George Siemens and Stephen Downes led an open online course in 2008 for 25 paying students at the University of Manitoba and was free to an extra 2300 students. Dave Cormier and Brian Alexander later called this type of course a MOOC. Peter Norvig² and Sebastian Thrun opened up a course on Artificial Intelligence at Stanford University to 100,000 student from over 200 countries. They granted over 20,000 certificates at the end of the course. Another Stanford University professor, Andrew Ng, similarly taught a course with 100,000 students in October 2011.

George Siemens talked about MOOCs last year in an interview³ with Howard Rheingold. There he describes his philosophy of MOOCs and what he learned from his first experience. He proposes that courses can be open where students do not pay for participating and the work is shared by all people. They engage with the content and connect, collaborate, and network with students and experts not typically available to the traditional classroom. The participants build a distributed knowledge base together, leading to lifelong learning, independence, and the creation of networks that last beyond that class. Students can repeat the class often and could eventually become experts that can teach others.

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² See his TED talk http://www.ted.com/talks/peter_norvig_the_100_000_student_classroom.html

³ http://www.youtube.com/watch?v=VMfipxhT_Co

Siemens also discusses learning outcomes and the need to provide statements in our syllabi like, “at the conclusion of the course the learner will” In the traditional university the students pay for our feedback on learning outcomes based upon our expertise. However, Siemens found that the nonpaying students had set self-defined targets. They were validated by a social network of thousands commenting on their posts. This form of peer interaction is embraced by MOOCs in the form of discussion forums and peer grading.

The technology over the past decade has made it possible for MOOCs to take hold. The growth of online courses is well documented⁴ with over six million students taking at least one online course Fall 2010. Free online lectures have been available through Massachusetts Institute of Technology’s (MIT) OpenCourseWare (<http://ocw.mit.edu/>) and other offerings from universities such as Stanford and Berkeley through iTunesU. MIT led the way ten years ago by posting course materials from almost all its classes. Its free OpenCourseWare now includes nearly 2,100 courses and has been used by more than 100 million people. Also during the past decade, Carnegie Mellon University’s Open Learning Initiative had created free online courses.

The real beginning of the MOOC revolution was sparked at Stanford University last fall with courses being offered to over 100,000 students each. MIT started a free class project, MITx, in December. Sebastian Thrun and others founded Udacity⁵. In April, Stanford, Princeton, the University of Pennsylvania and the University of Michigan joined forces with Coursera⁶ to offer free classes. In May, Harvard teamed with MIT. to create edX⁷ (MITx + Harvardx + BerkeleyX). Not only are universities getting on board, but the Bill and Melinda Gates Foundation recently announced a round of 10 grants for the creation of MOOCs for remedial coursework. The growth in the number of MOOCs is now underway with the appearance of several organizations partnering with major universities to provide a variety of courses. A complete list of free online courses offered by Stanford, Coursera, edX, and Udacity can be found at <http://www.class-central.com/>.

As noted, a big player in the MOOC industry is Coursera. Its first partners as of April 18, 2012 were Princeton University, Stanford University, the University of Michigan and the University of Pennsylvania. Now Coursera has 33 university partners, offer 195 courses and claim to have 1,502,351 students as of the writing of this letter. As noted in *The Chronicle of Higher Education*⁸ in August, Coursera had over a million students and Udacity 739,000. In her TED⁹ talk Daphne Koller said Coursera was created to provide *the best courses .. from the best instructors .. to everyone around the world .. for free.*

⁴ Going the Distance: Online Education in the United States, 2011
http://sloanconsortium.org/publications/survey/going_distance_2011

⁵ Udacity was founded by Sebastian Thrun, David Stavens, and Mike Sokolsky, with the stated goal of democratizing education. Its first classes were offered in Feb 2012 and there are currently 14 classes posted online.

⁶ Andrew Ng and Daphne Koller of Stanford University founded Coursera. <https://www.coursera.org/>

⁷ edX is a joint venture initiated by the Massachusetts Institute of Technology and Harvard University to offer courses at no charge. In March 2012 there was one course and several more in the Fall.

⁸ See <http://chronicle.com/blogs/wiredcampus/coursera-hits-1-million-students-with-udacity-close-behind/38801>.

⁹ http://www.ted.com/talks/daphne_koller_what_we_re_learning_from_online_education.html

Teaching to large numbers of students is not restricted to universities. Another prominent example in the news is the Khan Academy¹⁰. The Khan Academy was started by Salman Khan when he reached out to help his niece understand some topics in her mathematics class. This expanded to helping other relatives. He then made a few videos in November 2006 and found out that his nieces and nephews preferred him on YouTube as opposed to meeting in person or through Skype. This was because they were afraid to ask questions, did not want to admit that they did not understand particular points, and did not want to waste his time. He posted videos on YouTube and by 2010 obtained funding from the Gates Foundation and Google to expand what he was doing. As of the beginning of 2012 the Khan Academy had grown to 5 million unique students per month and 2 million exercises a day. It is experiencing a 400% growth per year as noted by Khan at the Stanford Graduate School of Business in February¹¹.

Recently they have provided software which allows students to work in the classroom at their own pace as they progress through the subject. It has been tested in a remedial classroom with interesting results, including improved student performance and freeing teachers to work more one on one with students, providing the opportunity for flipped classrooms (classrooms in which students watch short videos on a topic outside the classroom and come to class to work with their peers and the teacher answers questions, or leads discussions, on the material.). The Khan academy is now looking into materials for medical schools and life-long learning and embodies many of the features of a MOOC. Even some have learn from Khan that videos should be as short as ten minutes.

What is appealing about MOOCs? To those developing MOOCs, it is an opportunity to change the world by offering the “best courses” to those who otherwise could not get the education that MOOCs provide. To university administrations, it is possibly a new 21st century business model for cutting budgets. To businesses, it could lead to new revenue streams from affordable education. To students, it is an opportunity to get basic skills leading to certifications for obtaining jobs or to learn things that were long forgotten. For the rest of us, this might change our views of how students learn. In both Koller’s and Norvig’s TED talks, there was a clear message that data was being collected on a global scale and when the data is processed we may discover something about human learning that may just lead to a revolution in education.

Is this the end of higher education as we know it? It is a good sound bite for newspapers or technology podcasts, as heard recently on This Week in Tech (<http://twit.tv/twit>). It is not clear yet how such courses would be handled by current universities. Do we need one faculty member per 200 students? Should we encourage students to broaden their network and learn from different experts around the world, learning to think as a global participant? If you have not taught more than a couple hundred students before, as I suspect most of you have not, then you might wonder how one can get one hundred thousand students to learn. After all, some of us have a hard time with twenty students. What types of courses are conducive to MOOCs, What pedagogy is involved? Can MOOCs be part of accredited programs? We will explore some of these topics in upcoming letters.

¹⁰ See the Khan Academy at <http://www.khanacademy.org/> and listen to

¹¹ Listen to Salman Khan at <http://www.youtube.com/watch?v=W-vj6BhQa5w>