Massive Open Online Courses (MOOCs): not disruptive yet, but the future looks bright

Deloitte predicts that by 2014, student registrations in Massive Open Online Courses (MOOCs) will be up 100 percent compared to 2012 to over 10 million courses, but the low completion rates mean that less than 0.2 percent of all tertiary education-equivalent courses completed in 2014 will be MOOCs. The growing awareness of online education will force educational institutions to increase investment in this area, drive more acceptance of online education as it becomes accredited, and increase adoption by corporate training groups.

The idea that MOOCs will cause imminent disruption of the existing tertiary education market (also known as higher education or post-secondary education) appears frequently in the media, with over fifteen thousand articles on the subject published in 2013. While this hype creates interest, most large educational institutions will experiment with MOOCs, but they will not disrupt education significantly in the near term. Enterprise training and continuing education looks likely to be the fastest adopter of MOOCs, with significant growth in 2014 and 2015. Although the for-profit and not-for-profit tertiary education market is the largest, at $400 billion per year, the corporate skills development market is not small, at $130 billion annually.

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Today, when a tertiary educational institution offers a first year physics course online, it is typically available only to students who have been admitted and enrolled in that school and the tuition is the same as for the traditional version. MOOCs are more efficient because they avoid duplication of effort: first year physics courses tend to have very similar content at every university, which means MOOCs could be used to make a single, well-designed online version available to anyone, for a relatively low fee.

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While the top-line growth in MOOC registrations looks of three different groups: government, employers and course credits need to be fully recognized by some or all that care most about education.

To enjoy success with tertiary-level students, MOOC pedagogy is still in its relative infancy: traditional university courses have had centuries to perfect their teaching and learning methods, compared to less than five years for MOOCs. It appears that, at present, the vast majority of MOOC students that register have goals other than finishing the full course.

Some might be trying out the MOOC format; some might be merely curious. But the number one aspiration is “to learn more about a subject area,” not to complete an entire course.

So a free or low-cost MOOC course offers enormous value to its learners. For many, it is “to learn more about a subject area,” not to complete an entire course. MOOCs can be a good thing, most people expect something tangible in return for their investment of time and money.

Despite the view that ‘education for education’s sake’ is not disruptive yet, but the future look bright. Why is the MOOC completion rate so low? Not because courses are not enjoyable. One study found that 91 percent of students ranked their MOOC as good, very good or excellent – even though only four percent of those who registered ended up completing the course.58

Nor is it that MOOCs don’t teach subject matter well enough: one experimental Artificial Intelligence course at Stanford was also offered as a MOOC, and 410 students got better marks on the final exam than any of the in-person Stanford students.

Other studies provide early evidence that MOOCs lead to equivalent educational outcomes59. Also, MOOCs create more disruption yet?

Some governments consider enrollment in tertiary study as a factor when providing social assistance benefits and many don’t require repayment of student loans as long as such study continues60. Also, some jurisdictions offer tax benefits or military exemptions related to student status61.

In 2013, governments were just starting to debate whether enrollment in MOOCs would satisfy these kinds of requirements62, and it could be years before the debate is settled.

Employers often require formal levels of tertiary education for new hires, or as part of re-training or on-the-job learning. Requirements can range from full graduate and undergraduate degrees and professional designations to two-year diplomas or even completion of single courses. In 2013, only a few employers recognized MOOCs completed and passed as meeting these requirements63. Also, many enterprises are reluctant to accept MOOCs as full degree substitutes: according to one survey half of employers would not consider hiring someone who had earned their degree completely online64.

However, not all education is degree level. Many employers, from web portal companies to steel pipe manufacturers, are enthusiastically adopting MOOCs for internal corporate needs65. In fact, one survey found that 70 percent of companies are interested in MOOCs for corporate training, and 31 percent have active plans to use them.

Traditional educational institutions are taking a much more conservative approach to recognizing MOOCs: in 2013, it was estimated that very few accredited tertiary educational institutions accepted MOOC credentials, and few students even bothered to take advantage of such credits.

Education is a source of revenue for traditional education institutions, but is a cost for governments and enterprises, so it’s not surprising that they might be more eager to accept MOOC credentials than are universities and colleges, who may see low cost MOOCs as a threat to their business model.

Some early evidence suggests that MOOCs do not lead to inferior educational outcomes66, so credentialing is likely the biggest impediment to MOOCs becoming truly massive. Resolving this issue might be all that is needed for MOOCs to achieve their disruptive potential.

The Long Term

There appears to be a confluence of major trends and conditions that will likely lead MOOCs to cause disruptions for students, governments, the educational industry, the pace of innovation, continuing education, the digital divide, and society at large.

Cost of education to individuals. The single biggest driver of MOOCs adoption is likely to be their relatively low cost relative to traditional tertiary education: this is a trillion dollar issue over time.

58 91% MOOC satisfaction rating by University of Maryland’s Program in General Information Science, November 2013: http://www.pewinternet.org/2013/11/07/massive-open-online-courses-moocs/
60 1677158 and WikiCourse study: “There is some early evidence that MOOCs can be a better than face-to-face learning experience and can be analyzed and improved upon, rather than taking away from the traditional education system” Evaluation of Evidence-Based Practices in Online Learning, Washington: Business Innovation & Skills, September 2013: http://online.wsj.com/article/SB10001424052748703691170117015069971151346
61 Data extrapolated from OECD Indicators: Education at a Glance 2013, table 2.15, p.155; and OECD Indicators, 2013, table 2.14, p.151
62 The learning is the globally preferred term. MOOCs overlap with many courses education in North America and also rival degree and workshop, and includes terms such as higher education, further education and continuing education.
64 “MOOCs are Treated with Suspicion by Employers”, The Guardian, 1 October 2013: http://www.theguardian.com/technology/2013/oct/01/moocs-suspicion-employers
67 An important example of progress is government consideration of alternative education methods includes the April 2013 decision by the US Department of Education to extend its “credit for community service” policy to the College of America based on demonstration of learning accomplishments in the form of community service and equivalent educational credentials to competency-based education (http://www2.ed.gov/about/offices/list/cha/pdf/20130401.pdf)
71 Some universities are looking at MOOCs as a way to get students, for example, University of Pennsylvania, PR Web, 2013: http://www.prweb.com/releases/2013/11/prweb11330656.htm
72 Maryland college offering credit for massive open online courses, 6 September 2013: http://www.theblaze.com/stories/2013/09/05/massive-open-online-courses-moocs-can-lead-to-college-credit/
73 550 Million MOOC participants in 2013: http://www.moodle.org/mod/statements/view?rid=73656
79 “MOOCs are Treated with Suspicion by Students and Recruiters”, Financial Times, 16 August 2013: http://www.ft.com/cms/s/0/63e6970f-60e1-11e3-9f35-00144fdeac80.html
82 Maryland college offering credit for massive open online courses, 6 September 2013: http://www.theblaze.com/stories/2013/09/05/massive-open-online-courses-moocs-can-lead-to-college-credit/
While there are many different models for how students pay for tertiary education, in countries where students pay for a significant portion of tuition and books, the cost of traditional education has been climbing much faster than inflation: in the US, for example, since 1985 the consumer price index has risen 115 percent, while college tuition has risen almost 500 percent34. The money that students can earn at minimum wage has not kept pace, therefore US student loan debt has gone from just over $200 billion in 2003 to almost $1 trillion in 2012 while other lending, such as auto loans and credit card debt have stayed in the $600-800 billion range each over the same time frame35.

This sharp rise in student debt would be less of an issue if it positioned students to find jobs that paid well enough to repay the loans. Unfortunately the reverse is true: the cost of public four-year college tuition and fees in the US is rising faster than the average earnings of full time workers aged 25-34 with a Bachelor’s degree only: 72 percent growth in tuition since 2000, versus a 15 percent decline for earnings over the same period36.

Skills half-life is shortening across industries. In the past, a skill learned often created value for a lifetime. In contrast, the hundreds of millions of workers worldwide whose jobs either have been outsourced to a low-cost country or supplanted by new technology or robotics need to learn new skills. And it’s not just older workers who need retraining: the pace of technological advancement is such that the programming techniques computer students learn in first year might already be obsolete by the time they graduate, only four years later.

Cash-strapped governments and re-training. Obsolete skills translate into lower productivity and higher and persistent unemployment rates — both issues of great concern for governments at all levels. Broadly speaking, in the wake of the 2009 global economic crisis, many governments can’t afford to re-educate the 20-40 percent of their older workforce that requires it (let alone students who graduated in the last year) in traditional bricks-and-mortar universities, colleges and technical/vocational schools. Governments need a more cost-effective solution for re-training: MOOCs seem likely to be one possible more cost effective solution.

Advances in online education/ pedagogy. Education, both online37 and in person, is moving away from the “sage on stage” approach38. “Flipped learning” is a new approach based on the idea that traditional tertiary education has it backwards. Instead of a professor lecturing to passive students, who then go home and struggle with material unsupported, students view lectures at home, and then come to class to get help on assignments from the professor in person. Recent data suggests that over 80 percent of professors who are using flipped learning believe it improves their students’ mastery and retention of information39.

Flipped learning is possible in traditional schools, but because the technique is based on recorded lectures distributed over the Internet, it is particularly suited to MOOCs.

Push vs. Pull. Traditional education is a lot like traditional TV: students show up at scheduled times for lectures and write exams at even more rigorously scheduled times. As younger viewers transition from a world where content is pushed to one where they pull content towards them, we are likely to see students embrace MOOCs that allow them to learn what they want, when they want. Also, younger viewers often don’t lock themselves into specific channels, viewing patterns or fixed schedules, but might consume video in small chunks and clips, or perhaps might go on a binge and view everything at once. In the same way, they might acquire education in ways that differ from traditional tertiary education with its clearly defined curriculum and end point. In this new world, completion rates might be less meaningful.

Big data/analytics/granularity. As the cost of education rises, it becomes increasingly necessary to measure its effectiveness. At a national level, across millions of students, measurement and analysis of education outcomes tend to be partial, slow and coarse. Even collating final exam results from hundreds of institutions takes weeks to months. In contrast, analysis of MOOCs can use modern big data tools to run real-time queries — not just of every mark for every assignment and every test for every student — but even looking at text or lectures while students are reading or viewing them, and then examining specific passages that are being replayed, which might indicate they are poorly written or hard to understand. In this way, educators could use real-time data to improve MOOCs on a daily basis40.

Technology. Robust Internet, pervasive broadband (landline and wireless) powerful connected devices, powerful collaborative software tools, as well as big data tools and analytics will all make the MOOCs of 2020 even more potentially effective and disruptive than in 2014, especially outside the developed world.

37 The Student Loan Debt Crisis in 9 Charts, Mother Jones, 3 June 2013. http://www.motherjones.com/politics/2013/06/student-loan-debt-charts
39 Moving forward-moocs
40 LEARNING ANALYTICS AT STANFORD TAKES

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80 MASSIVE ONLINE COURSES (MOOCs): not disruptive yet, but the future look bright
Bottom line
MOOCs are a fast-growing trend in the educational landscape. In the short term, MOOCs aren’t a threat to traditional tertiary education providers, and in fact might never be a threat, even in the long term: MOOCs and traditional education might not be a zero-sum game. People whose primary learning motive is certification or in-person networking might still pay the higher cost of traditional programs. However, providers of MOOCs are branching into new business models. In addition to the revenue from providing fee-based platform services to traditional universities, MOOCs are currently collecting modest fees from certification options, as well as from partnerships with employers to provide targeted learning programs, which might become material in the medium term if the enterprise MOOC market is the first to take off. The US Department of Education’s decision to provide funding based on demonstration of competencies rather than hours spent in the classroom suggests that at least one government is willing to start endorsing non-traditional education approaches in the face of mounting pressure to do something about the looming student debt crisis.

MOOCs don’t provide the same on-campus experience and social component as bricks and mortar institutions. However, the percentage of students over the age of 25 is increasing faster than the percentage of students under the age 25 as life-long learning becomes a requirement for continued employment. These older learners might be less interested in the campus experience that is so appealing to 18-22 year olds, and might prefer being able to learn on their own time and turf: particularly as the perceived isolation of online learning is mitigated by new social media elements. MOOCs seem well placed to meet the needs of the next generation of learners, who are increasingly disillusioned with the idea that a degree is necessary for success, more comfortable with multi-media content delivery, and increasingly averse to student debt.

While MOOCs might not be a significant presence in the traditional for-profit tertiary education market today, colleges and universities need to take the MOOCs threat seriously and learn how to harness it, much like traditional media and music companies have benefited from embracing digital content. As MOOCs become larger and better credentialed, they could become a disruptive force, especially because of how cross subsidization works in for-profit tertiary educational institutions today. The current financial model for most high tuition tertiary education is that courses in the first and second year tend to be very large (with thousands of students in a lecture hall listening to a single professor), while third and fourth year classes are very small (less than 50 students). Yet the tuition is the same because the first two years effectively subsidize the cost of the final two years. However, MOOCs seem particularly well suited to replace first and second year classes. If student take those classes through MOOCs, and then transfer into a traditional tertiary school for the final two years, colleges and universities may become almost entirely uneconomical, unless they raise tuition for the later years to reflect their true cost (more or less double the current levels).

One of the key positive aspects of MOOCs is the educational opportunities they provide to those who would otherwise not have access to tertiary education, due to factors such as cost, distance, language, and the need to work. MOOCs can be a game changer in those instances, and in developing nations won’t have the same kind of installed base of incumbent educational institutions to compete with for credentialing status. Also, there is an opportunity in those nations for governments to support MOOCs in the same way public universities are supported in many developed countries.

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