MOOCs and Wharton: One toe in the water – time to put on a bathing suit?

Jake Samuelson and Ariel Quiñones
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Executive Summary and Research Question

In this paper we analyze the emerging trend of MOOCs through the lens of a premier higher education institution – Wharton – and ask if and how should Wharton leverage MOOC offerings in the future? Overall, we argue that Wharton should not be lulled by years of prestige and stability and must begin to recognize the disruptive nature of MOOCs.

Our paper begins by raising the **key strategic questions** for Wharton. We then discuss available demographic data on **MOOC enrollment** and discuss how new technology compares and impacts **Wharton's core value proposition**. Finally, we outline **strategic recommendations** for Wharton. We have tried to make this paper as operational as possible, but have also included a **MOOC background information and competitive landscape** section in Appendix 1.

Key Strategic Questions

The key question for a top tier university is captured well by George Anders in a Forbes article:

> "For universities, the biggest unresolved question is whether an online enrollment boom will bring extra prestige and global impact at little cost — or will be a first step toward hollowing out the time-honored but expensive world of residential higher education."

Most press articles have focused on the former storyline – MOOCs are going to disrupt the lower end market, and Wharton and other elite institutions are safe in their haven of high-priced, high-demand offering. But anyone who has studied Christensen's "Disruptive Innovation Theory" will identify this storyline as shortsighted.

The theory explains that virtually *every* innovation begins with competition against "non-consumption"

– were a mass of users who are not currently served by an existing offering adopt a new product that is lower quality than incumbent offerings. MOOCs offer access to elite instruction for free to anyone with an internet connection, where it was once available to a "tiny sliver of the world's population." Billions of people would never have had this access because of financial or geographic constraints, and many students are delighted to have a lower-cost product even if quality was somewhat lower or capacities limited. One could view MOOC students all as "new customers" and feel safe that demand will not diminish anytime soon for the offering of elite institutions. According to this logic, institutions such as Wharton can focus on "sustaining innovations" and improving performance in an established market.

But the second part of the story has played out time and time again with Canon vs. Xerox, Apple vs. DEC, and Sony vs. RCA. By appealing to "non-consumers" the definition of quality is different from what "quality" means in the established market. The producers and consumers of higher education see the new service as lower quality, and have a difficult time engaging simultaneously in the new disruptive plane. As they focus on their core market, the disruption improves – bringing new resources including teachers, students, and capital. Eventually, even the privileged high paying customer starts to consider the disruptive offering as a substitute, and the market preferences start to shift – hurting the revenue streams of the incumbents. As Singularity University Chancellor Ray Kurzweil has stated "MIT, Stanford and the Ivy League schools, will have a bit more time to adjust, given their prestige and the buffer of their endowments, but this transformation will ultimately have profound consequences for all participants."

MOOC statistics and trends

So who are MOOC students anyway? Are they all former "non-consumers"? Or are we already seeing signs of Wharton's core consumers moving adopt Coursera, Udacity, and edX offerings?

Demographic data is difficult to come by, but Coursera and Udacity have released some geographic data. Not surprisingly, the highest proportion of students is from the US (38% for Coursera, and 42% for Udacity). Coursera had students registered in 196 countries according to August 2012 data, with Brazil (6%), India (5%), and China (4%) following the US. Udacity has a similar breakdown, with students in students in 203 countries.

More interesting is data on user's intent and professional / educational background. Among the 14,045 students who responded to his class survey in Andrew Ng's Machine Learning class (one of Coursera's flagship classes) roughly 50% of students had tech jobs already, 20% were graduate students, and 12% undergraduates. Among nearly 6000 student respondents from Karl Ulrich's design class on Coursera, roughly 46% were employed in the design field. Some were very experienced designers with 4 or more years in the field, while 42% had no design experience.

Coursera and Udacity students present a diverse group, but what can we learn from this data? Certainly there is reason to believe that most adopters are "new" potential students for Stanford and Wharton – just given the small number of students admitted each year this has to be the case – but we believe students on Coursera and Udacity could eventually depress demand for Wharton's core offerings. Anecdotally, this is most of the case for Wharton's entrepreneurial majors where the pressure to take on less debt is more acute (no promise of high-living after graduation), and where there are increasingly cheaper (and arguably better) options than an MBA curriculum to teach you the skills on how to launch a tech startup. Gradually we expect to see entrepreneurially inclined students decide not to take on debt for Wharton, Stanford, or HBS, and instead choose to "hack their education" with an increasingly powerful set of online (e.g., Coursera, Udacity, Codecademy) and offline (e.g., Skillshare, General Assembly) options.

While not possible to make inferences from this data, it is useful to think about MOOC adoption through Everett Rogers diffusion theory. MOOCs rank quite highly on several of Rogers' 5 factors. Relative advantage depends largely on the audience and alternative options, compatibility is high for those who are always on the web, MOOCs have relative simplicity to use, high trialability, and high observability with our hyper-sharing economy and connected social networks. We believe current users are beyond the innovators and in the early adopter category. We suspect "crossing the chasm" between the early adopters and the early majority is very close upon us – for both undergraduates and graduate students. Wharton should continue to monitor demographic data of students on these platforms, with special attention to professionals in tech careers and those with entrepreneurial ambitions.

Unbundling the Wharton value proposition

When analyzing new educational technology we find it useful to evaluate Wharton's core competencies

and value propositions, and see which elements are most impacted by MOOCs. We breakdown Wharton offering into three main components:

1. Training for workforce – "what do you actually learn"
2. Network – "who you meet that can help you"
3. Signalling for employees – "can this help you get your foot in the door"

Below we consider the relative advantages and disadvantages versus current offerings across these 3 dimensions and discuss implications for Wharton. These implications will be expanded in our last section.[1]

1. Training

+ online you can get the best teachers even if they aren't at your school

+ online is self-paced and personalized

- many subjects are very difficult to teach online (e.g., philosophy)

- communication is lost when you are not actually in a room with passionate teacher & other students

- assessment and feedback can be difficult to deliver at scale

Wharton should study MOOCs and adaptive platforms such as Knewton, to think about how technology can scale their best teachers, while making learning more self-paced and personalized. Wharton should also look to develop hybrid approaches to teaching online and offline to make we make the best use of both mediums.

2. Social networks

+ online communities can actually foster more discussion and collaboration

+ online community can be more diverse

- online learning can't replicate face-to-face community that is the heart of the university experience

- relationships are stronger when they are in person

[1] We must also remember the relative advantage for most students is compared to a reality that is counter to the media's view of higher education. The idealized "college experience", as highlighted by Marginal Revolution cofounder Alex Tabarrok, is experienced by only a minority of students. He writes, "Say 'college student' and the image may be of a young person just out of high school living in a dorm pursuing a four year degree with few financial constraints. The reality is that more than a third of college students are over the age of 25, nearly half are enrolled part-time, and most are working. About one quarter of college students have children of their own!"

If Wharton supports MOOC offerings, Wharton should complement online offerings with in-person meetups. Wharton alumni could use concurrent enrollment in Coursera classes as a mechanism to re-connect with fellow classmates. Lastly, Wharton should go beyond Coursera forums to create meaningful shared experience for students taking Coursera courses.

3. Signaling

+ assessment on online classes may end up being stronger indicator of potential
- many view online classes as lacking academic standards and trust
- online classes together don't deliver a "degree", certificates or badges don't hold much value currently

Overall, universities stamp their graduates with a giant seal of approval for employers. Right now online classes provide little value in terms of signaling for students, but that has the *potential to* seriously change as Udacity and Coursera consider career placements as an important source of revenue. Wharton needs to consider the implications of moving towards greater transparency of knowledge through MOOCs (employers can see which questions you got correct, how often you supported classmates on forums, etc.) while Wharton students are not even allowed to share their grades with employers!

Strategic recommendations

While we have touched on implications throughout this paper, in this section we outline steps that Wharton should take in light of these developments:

Don't lock-in

Coursera allows Wharton to learn and experiment with online learning, enhance their mission to disseminate knowledge widely, appear on the leading edge of innovation versus competitors, and appease professors who want to grow their brand, all without making major investments. As outlined in *Fast Second*, Wharton is organized as a consolidator not a colonizer, given its skills, competencies, and culture that are tailored to work in its existing business. Wharton has largely acted as an "outsourcer" of innovation, and should continue to support feeder firms.

Supporting professors on the platform is a smart strategic play, but should be viewed as a first step. We believe that Coursera, EdX, and Udacity offerings look similar today, but technology differences may

begin to emerge. Suppose the dominant factor today – a 5-7 minute lecture, with a mildly interactive quiz – is a very early design form, and not the dominant design. This form is better than taped videos, but worse than a truly interactive educational experience designed for the medium. It would seem a quite reasonable to imagine a better design emerging with tens of millions of dollars pouring in, some of the world's best technologists working on education problems, better personalization technologies, powerful game design approaches, and more mobile-first designs coming to market.

Khan Academy, the organization that largely gets credit for this form factor has started taking major moves away from the video-quiz lecture format with development of their first computer science curriculum. Udacity and edX controlling the design of curriculum and format would seem to have a better ability to adjust and improve, versus Coursera which depends on teachers developing courses and using Coursera's (limited) tools to "publish" a course online. Wharton should monitor developments in this emerging space with an eye for separation between the MOOC providers.

Develop flipped classroom models

Alex Tabarrok, founder of Marginal Revolution University states in his essay Why Online Education Works, "My offline students get my average 15 minutes; my online students get my best 15 minutes." If Wharton Professor Karl Ulrich's online curriculum on Coursera is better than his in-person lectures, what should Karl Ulrich do? One answer is to move towards a flipped classroom model, where "lectures" are delivered at outside the classroom and classroom time is repurposed for more meaningful and interactive experiences. This model has been transforming K12 classroom across the country with pioneers including School of One and Rocketship Education rapidly implementing flipped classroom experiences for students.

Wharton Professor Tom Lee's Development of Web-Based Products and Services class has already developed a classroom model feel, where classroom time is reserved for hands-on workshops. More professors should be encouraged to follow a more "lab based" model, especially those already teaching on Coursera. The promise for higher education institutions is students will spend less time in lectures and more in problem solving to reinforce material. Teachers limited classroom time will be used more effectively helping students gain mastery, not just delivering lectures while 50% of students check their email on their phones.

Seed new learning approaches

Wharton should encourage professors to experiment with models for combining online material – quizzes, games, help forums, etc. – and offline tools – lectures, forums, in class projects, meetups, etc. – to deliver the best educational experience. Many professors will incur the cost and extra effort of adopting technology and adapting teaching methods, but would be enabled with greater institutional backing. Would some extra funding for a video studio, TA support, or editing support accelerate adoption? We think so. Support and training would also help professors who are less comfortable with new platforms to experiment and adopt new teaching methods. Like Stanford's new seed grants, Wharton should provide similar grants for a range of on-campus experiments.

Integrate new learning and organize for the future

Additionally, Wharton should continue to integrate learning from experiments - including experiences from professors using Coursera - to help develop a long-term strategy for *on-campus* education. Stanford has made investments that should be considered including hiring a provost for online learning to oversee and integrate new approaches, while MIT has also recently hired a director of online learning. MIT has messaged heavily that the rationale behind MITx and now edX is to use these are learning labs to see how to best use technologies to enhance the learning experience.

Wharton should make similar personnel and organizational investments. But should Wharton make further organizational changes? With edX, MIT seems to have taken a page out of the Christensen playbook to create a new unit with its own culture and processes with more independence from the "parent company." At edX, the MIT team is focused on new goals: developing high quality, scalable, mass education at very, very low cost. This freedom may allow MIT and Harvard to organize and prepare for disruptive innovation in higher education more than a school that simply participates in Coursera. edX is more than a new education delivery method – it is a tool for education research. Wharton should monitor this model, and consider new organizational processes that may be uncomfortable in the short-term but ultimately necessary in the long-term.

To this point of discomfort, we believe fewer teachers may be necessary to delivering the same material (e.g., core classes, negotiations, intro to finance). Future hiring decision may want to unbundle research and teaching responsibilities. Star professors will be the winners in the market, and we anticipate professors from top schools including Wharton, will find MOOCs to be great lead generation tool for lucrative consulting engagements or other career opportunities. Wharton's contracts with MOOC

providers may need to be revisited to ensure professors are sufficiently incented in this new arena of online learning.

Test credit offerings and new partnerships

If Wharton students are able to supplement their course requirements with classes outside Wharton at the university, we believe this model should be considered for MOOC offerings. Wharton should consider other Coursera offerings with an eye towards classes not currently taught at Wharton, demanded by students, and taught by star professors. Classes on User Experience, Human Computer Interaction, Machine Learning, Databases, etc. should be strongly considered. Wharton TAs could be used to proctor exams, support student meet-ups, hold office hours to answer questions, and provide more detailed feedback on assignments (a current limitation for MOOCs being addressed with peer reviews).

Overall, the rise of the MOOCs is an exciting opportunity for Wharton to capitalize. In the short-term we believe MOOCs have the potential to boost Wharton's brand and presence internationally – increasing the pie but not cannibalizing or eroding core offering. Longer term, however, online offerings threaten Wharton's core value proposition (education value, signaling value, network value) in different ways, and Wharton must evolve to retain leadership. We emphasize that most of these suggestions are minimal investments required, and may not be sufficient to prepare for potential once in a century disruption. Wharton currently has dipped its foot into the MOOC waters, but now it's time to consider putting a bathing suit.

APPENDIX 1 - MOOC Background

Year of the MOOC

2012 has been a year of big numbers and firsts, as The *New York Times* has declared 2012 The Year of the MOOC (Massive Open Online Classes). Millions of people around the world have signed up to take MOOCs, with more than 2 million students served by Coursera in less than 1 year. Stanford professors created the two largest MOOC offerings in Udacity and Coursera, and Stanford took the landmark step in appointing a Vice Provost for Online Learning this fall. MIT and Harvard created edX, with University of Texas and Cal Berkeley joining them earlier this year. The first brick and mortar educational institution, Antioch University, will offer Coursera MOOCs for credit as part of a bachelor's degree program started next year. San Jose State and Massachusetts Bay Community College in Wellesley integrated edX content into their classes, building a blended learning environment mirroring what K12 classrooms have done with Khan Academy. Wharton got in the game by investing in Coursera and Wharton professors launched courses including traditional classes (Introduction to Operations Management) and new offerings (Gamification).

Why now?

Distance learning has been hailed as the next big thing in education since the rise of the modern postal service. A hundred years ago, the postal service made it possible to deliver education content outside campus walls, and promised to provide more personalized instruction. Today the same promises are being made – should we believe the hype? Online education has a long history as well, but 2012 we hit a tipping point of energy, funding, and consumers.

As Tom Friedman has written in the New York Times, "Big breakthroughs happen when what is suddenly possible meets what is desperately necessary." Wireless technology, high-speed broadband, cloud storage, and students who grew up always connected have all contributed to the "suddenly possible" moment. The cost of delivering interactive multi-media classes had dropped rapidly, allowing low-tuition of no-tuition offerings to flourish. What accelerated this moment was the power of Sal Khan, showing the world that the best teacher is just a click away and free to access. "Desperately necessary" is driven by rising costs of higher education, with Peter Thiel serving as a walking megaphone challenging the notion that higher education is worth the investment for most students. What pushed MOOCS to the front page of Time Magazine is the world's greatest institutions have now joined the ranks and are offering their content for free.

Key Players

The major players in 2012 are edX, Coursera, Udacity, and the Minerva Project. Put simply, edX is created by universities, Coursera distributes content by universities, Udacity is trying make a digital university (Udacity is a portmanteau for *Audacity* and *University*), and the Minerva Project is trying to create an affordable, elite online and offline university. Highlighted features of each program are included below:

Organization	**Courses / Partners**	**Enrollees**	**Model / Funding**	**Completion Outcome**	**Revenue Model**
Coursera	30+ partners; ~200 courses	2M +	for-profit; $22M - Kleiner Perkins Caufield & Byers and New Enterprise Associates	Signed certificates of completion from professors; credit for students at Antioch University; currently courses under review by American Council on Education (ACE)	Multiple options - most widely discussed includes students paying for certificates; second job placement
Udacity	Independent curriculum; CS focused, ~20 courses	800K +	for-profit; $15M from Andreessen Horowitz & Charles River Ventures	Certificates tiered by academic performance.	Currently job placement with Google, Bank of America, Twitter, Facebook and others
edX	MIT, Harvard, Berkeley, UT; 8 classes with plans to double in Spring 2013	150K +	non-profit; $60M from Harvard and MIT to launch	Two certificates - one for honor code and one for proctored exam - with edX and campus name.	N/A
Minerva	N/A	N/A	for-profit; $25M+ Benchmark Capital	Planned degree	Student Tuition

Starting next fall, a large ed-tech player 2U (formally 2tor) has partnered with 10 prominent universities, including Duke and Northwestern, to form a consortium called Semester Online for their own students and new students. So far the University of Pennsylvania and Wharton have engaged with Coursera, but this does not rule out future partnerships.

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