

The Online Education Tsunami

“The University of London reported that 9,000 students had signed up within the first 24 hours.”
BBC News 17 October 2012

“MIT received ... 155,000 registrations worldwide for edX’s first course [Circuits & Electronics], 23,000 online learners who completed the first problem set, 9,000 who passed the midterm, and nearly 7,200 who passed the course.”
Wall Street Journal 2 October 2012

“We are a social entrepreneurship company that partners with the top universities in the world to offer courses online for anyone to take, for free”.
www.coursera.org, 7 March 2013

INTRODUCTION

The executive education paradigm is living a gradual and radical transformation in the last years (Conger and Xin, 2000). In the very last years, such transformation in education became a real revolution, involving both post-graduate and undergraduate programs. During the last twelve months, millions of persons have enrolled in university-level courses in some of the most prestigious universities worldwide, online, for free.

These courses are the so-called Massive Online Open Course (MOOC), and as their name indicates they are massive, online and open.

Massive because of their numbers.

As of July 2013, the number of registered participants for online education at Coursera: was 4,182,430. All of them registered within the last year alone. A single course could have thousands of participants. Take for example the MIT course “Circuits & Electronics” offered last year by EdX which had 155,000 participants registered. A single course. “The University of London reported that 9,000 students had signed up within the first 24 hours.” [BBC News 17 October 2012]

Online because they are delivered via the internet.

Like in many other endeavours, the key to the revolution has been technology. In the case of the current revolution of online education this can be traced to the development of MOOC technology. Here we encounter the pioneering work of George Siemens and Stephen Downes who implemented the first ever MOOC in 2008. They used a variety of platforms, including Facebook groups, Wiki pages, blogs, forums and amongst others, via “gRSShopper”: a personal web environment that combines resource aggregation, a personal data space, and personal publishing.

Open because anyone can join, for free.

No formal qualifications are required to enroll in these courses: teenagers, university students, graduates, working professionals, retired persons. Anyone. All the courses are free. No fees have to be paid for taking the course, submit homework or taking exams. (However, some universities have recently proposed to charge students for proctored exams in some locations).

Some people, like Stanford University president John Hennessy, have described it as “an oncoming tsunami”¹. Others, like Sir Michael Barber from the Institute for Public Policy Research (a UK leading think tank), talk about an “avalanche”². Finally, Clayton Christensen and Henry Eyring in their recent book “The Innovative University: Changing the DNA of Higher Education From the Inside Out” say that “Higher education is heading for disruption.”³

1 Financial Times, 14 Aug 2012

2 <http://www.ippr.org/publication/55/10432/an-avalanche-is-coming-higher-education-and-the-revolution-ahead>

3 Christenses, C., Eyring, H. (2011) The Innovative University: Changing the DNA of Higher Education From the Inside Out, Jossey-Bass, 2011. <http://www.theinnovativeuniversity.com>

Whatever we call this dramatic phenomenon, we all ought to know more about it.

In this report we briefly describe this online education tsunami. We answer some of the key questions about it, in particular: Who? What? Where? When? How? Why?

WHO?

Who is behind the online education tsunami? Even though universities are sources of the faculty and the courses offered, they are not organizing themselves the MOOC. These are offered through separate institutions. The big three are: Coursera, EdX and Udacity.⁴ There is also Class Central⁵, which is an aggregator of MOOCs offered via Coursera, Udacity, edX, and some others.

Coursera

Coursera is an educational technology company founded by computer science professors Andrew Ng and Daphne Koller from Stanford University. Coursera works with universities to make some of their courses available online, and offers courses in engineering, humanities, medicine, biology, social sciences, mathematics, business, computer science, and other areas. As of July 2013, Coursera offers 410 courses created by 83 partners worldwide

www.coursera.org

EdX

edX is a not-for-profit enterprise founded by Massachusetts Institute of Technology and Harvard University to offer online university-level courses in a wide range of disciplines to a worldwide audience at no charge. The two institutions have each contributed \$30 million of resources to the nonprofit project. edX launched in Fall 2012. For a modest fee certificates of successful completion will be offered but not college credit. As of July 2013, edX has 58 active courses, offered by 28 partners including Harvard, MIT, and Berkeley.

www.edx.org

⁴ There is a new initiative controlled by the Open University in the UK called Futurelearn. (<http://futurelearn.com/>). The aim of Futurelearn is to allow “students from the UK and around the world will have free access to some of the country’s top universities”. The universities of Birmingham, Bristol, Cardiff, East Anglia, Exeter, King’s College London, Lancaster, Leeds, Southampton, St Andrews and Warwick. No courses are offered yet but these will come in the next few months.

⁵ <http://www.class-central.com>

Udacity

Udacity is a private educational organization founded in 2012 by Sebastian Thrun, David Stavens, and Mike Sokolsky. Udacity is the outgrowth of free computer science classes offered in 2011 through Stanford University. As of July 2013, Udacity has 27 active courses.

Udacity is funded by venture capital firm, Charles River Ventures, and USD 300,000 of Thrun's personal funds. In October 2012 the venture capital firm Andreessen Horowitz led the investment of another USD15 million in Udacity.

Udacity has started offering – for a fee – a few courses for college credits in partnership with San Jose State University.

www.udacity.com

WHAT?

What courses offered by these three initiatives? The courses are mainly at an undergraduate level, but with a minority graduate level courses.

They cover an immensity of fields, ranging from programming to physics, from nutrition to neuroscience. Some of the courses are listed in the Table 1 below.

WHERE?

As we said, the MOOC are offered by some of the most prestigious institutions in the world. For example, the courses offered by Coursera are done in partnership with such as Stanford University, École Polytechnique Fédérale de Lausanne and University of London International Programs. For a full list see below Table 2.

In terms of the geographical location of the participants, these are also eminently international. It was reported some months ago that "One million students have signed up for college-level classes being offered online by California-based Coursera — and most of them aren't in the United States. A newly released list of Coursera's geographic reach shows that non-U.S. signups account for 61.5% of Coursera's enrollment, with Brazil, India and China leading the way."⁶

WHEN?

⁶ <http://www.forbes.com/sites/georgeanders/2012/08/09/courseras-huge-online-classes-roar-into-brazil-india-and-china/>

The majority of the MOOC are offered in asynchronous mode. This is, the lectures and slides for the course are all prepared a priori. Thus, course material can be downloaded by the participants before the start of the course. Even though the duration of the course could be for a few weeks, say eight or ten, the pace of the lectures is only suggested by the instructors. Participants can go slower or faster according to their needs. The real moment of synchronization during the lectures is during the submission of homework, which has a deadline, and the partial and final exams.

In addition to the formal structure of the course, some courses offer the possibility to organize some face-to-face meeting. E.g. Coursera offers the very interesting feature called "Meetup". These are face to face meetings are organized by groups of participants locally in many locations around the world. Typically a small group of participants who are following a course decide to meet to discuss the topics and problem solving. The meetings typically happen in internet cafes with a free Wi-Fi connection. Currently Coursera has a database with 20,438 participants meeting in 2,250 cities around the globe.⁷

HOW?

A critical issue about the online education tsunami is grading. Of course there are ways in which a quiz or a questionnaire can be prepared and available online for participants. But considering that this has to reflect the specific achievements of an individual it is necessary to do this in a secure way.

This represents not a significant problem because this is already done for many type of certifications in the world, for example the SAT, GMAT, TOEFL, GRE. A proctored exam is organized in a location and candidates attend to answer a final exam. i.e. Pearson VUE is the world's leading test center network⁸.

WHY?

Perhaps the most critical question about the online education tsunami is why? Why has this phenomenon happened right now? We can answer this question from three points of view: that of the students, that of the universities, and that of the employers.

From the point of view of students

There is and has always been an interest in education. Right now we have a necessity of specific skills to solve specific problems in the professional world.

⁷ Coursera Meetups are a great way to meet your fellow Courserians, swap stories, share ideas, form study groups, and have a great time. <http://www.meetup.com/Coursera/>

⁸ <http://www.pearsonvue.com/>

Many professional qualifications are also required to do regular certifications. Such as CFA, PRMIA. Need for Continuing Education worldwide

From the point of view of universities

The target student populations are changing. The largest institutions in the world are opening up to large populations in such as China and India, where there is an explosion of the populations requiring university-level education.

At the moment the initiatives as have been said are for free, but some universities (such as MIT, U Texas, U Washington) are considering paying a small fee for proctored examinations.

From the point of view of companies

Companies and professionals live in a very knowledge-intensive environment. In such context, education plays a pivotal role for supporting the professional and personal development processes. With this respect, MOOCs can play the role of “activators”, in other words MOOCs can facilitate participants “to stay active” in this development processes.

At any rate the prestige of online education is growing: a recent survey conducted by Excelsior College/Zogby International, found that “61 percent of CEOs and small-business owners were familiar with online degree programs -- and 83 percent of those considered online degrees equivalent to those earned in a traditional classroom.”

CONCLUSIONS

How do we ought to respond to this phenomenon. E.g. Shall we join as a university and offer courses like the others without much thinking? What is our stance regarding the nature of education? These are all important questions. We can consider these in terms of two dimensions: theoretical and practical.

Theoretical

From a theoretical point of view, we can invoke the assistance of some of our leading intellectuals, like eminent sociologist Zygmunt Bauman, promoter of the idea of the “liquid society”, which in his essay “Education in Liquid Modernity”⁹

- “society is being transformed by the passage from the ‘solid’ to ‘liquid’ phase of modernity, in which all social forms melt faster than new ones can be cast. They are not given enough time to solidify”

⁹ Bauman, Z. (2005) Education in Liquid Modernity, *Review of Education, Pedagogy, and Cultural Studies*, 27(4), pp. 303-317 <http://www.tandfonline.com/loi/gred20>

- “The practitioners of a life sliced into episodes, each with its new beginning and abrupt ending, have little use for an education that aims to equip its objects for an unchanging world...”
- “Loading oneself with information, absorbing and retaining information, struggling for a completeness and cohesion of the information stored—it all looks suspiciously like offering oneself as a dumping site for prospective waste, and thus like an outrageous waste of time.”
- “Instead of an image of an edifice erected floor by floor, from the foundations up to the roof, signaling the completion of building, it is better to think of knowledge as offered and consumed in small bites, each one separately cooked and quickly chewed and digested, and then just as quickly vacated from the digestive track...”
- “It is better to think of knowledge production and consumption after the pattern of fast food, prepared rapidly and eaten fresh, hot, and on the spot, rather than in terms of haute cuisine’s meticulous composition and laborious cooking of dishes...”
- “All this militates against the very essence of school-centered education, known for its predilection for a stiff curriculum and predetermined succession of learning.”

In short, the arrival of online education revolution, or online education tsunami as we have called here, is a sociological phenomenon that fits perfectly in time with the “liquid” society in which we live.

Practical

From a practical point of view, these changes are indeed already amongst us. For example, in Italy some Universities are in the process of joining Coursera or other MOOC systems.

In summary, there is a need for immediate action. As explained by Barber et al (2013):

Our belief is that deep, radical and urgent transformation is required in higher education as much as it is in school systems. Our fear is that, perhaps as a result of complacency, caution or anxiety, or a combination of all three, the pace of change is too slow and the nature of change too incremental.¹⁰

The world is changing around us. The worst thing that we could do is to stand still.

¹⁰ Barber, M., Donnelly, K., Rizvi, S. An avalanche is coming: Higher education and the revolution ahead, 11 Mar 2013, online at <http://www.ippr.org/publication/55/10432/an-avalanche-is-coming-higher-education-and-the-revolution-ahead>

Table 1: Courses: examples from Coursera

Maps and the Geospatial Revolution
Nutrition and Physical Activity for Health
The Holocaust
Programmed Cell Death
Jazz Improvisation
Songwriting
Mathematical Biostatistics Boot Camp 1
The Modern and the Postmodern
Ser mas creativos
Introduction to Human Physiology
A Brief History of Humankind
Social Psychology
Computational Investing
Animal Behaviour
Calculus One
Microeconomics Principles
Think Again: How to Reason and Argue
Analysis of Algorithms
Introduction to Mathematical Thinking
The Ancient Greeks
Vaccines
Introduction to Pharmacy
A History of the World since 1300
An Introduction to Financial Accounting
Statistics One
Comic Books and Graphic Novels
Scientific Computing
Introduction to Logic
Corporate Finance
Designing Cities
Soren Kierkegaard - Subjectivity, Irony and the Crisis of Modernity
Egiptologia

Table 2: Coursera Partners

American Museum of Natural History
Berklee College of Music
Brown University
California Institute of Technology
California Institute of the Arts
Case Western Reserve University
Columbia University
Commonwealth Education Trust
Curtis Institute of Music
Duke University
École Polytechnique
École Polytechnique Fédérale de Lausanne
Emory University
Exploratorium
Georgia Institute of Technology
Hebrew University of Jerusalem
IE Business School
Icahn School of Medicine at Mount Sinai
Johns Hopkins University
Ludwig-Maximilians-Universität München (LMU)
Match Teacher Residency
National Taiwan University
National University of Singapore
New Teacher Center
Northwestern University
Pennsylvania State University
Princeton University
Relay Graduate School of Education
Rice University
Rutgers University
Sapienza University of Rome
Stanford University
Technical University of Denmark (DTU)
Technion - Israel Institute of Technology
Technische Universität München (TUM)
Tecnológico de Monterrey
Tel Aviv University
The Chinese University of Hong Kong
The Hong Kong University of Science and Technology
The Museum of Modern Art
The Ohio State University
The University of British Columbia
The University of Chicago
The University of Edinburgh
The University of North Carolina at Chapel Hill