



MOOC Platforms

ANALYSIS REPORT

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MOOC PLATFORMS: ANALYSIS REPORT

PREFACE:

This study focuses on the review of four leading MOOC platforms namely Coursera, EdX, NovoEd and Udacity. This report is the output of the joint research by Shim Vijay and Evin Jayes Yesudas done over a period of four weeks.

Using 6 courses (minimum one course from each platform) from all the platforms as a case study, analysis have been done to understand their functioning under various categories.

Based on the findings of this study, it shows that it is the purpose of creating the platforms that define the kind of courses they deliver and the kind of participants and partners they cater to.

INTRODUCTION:

A massive open online course (MOOC) is an online course aimed at unlimited participation and open access via the web. In addition to traditional course materials such as filmed lectures, readings, and problem sets, many MOOCs provide interactive user forums to support community interactions between students, professors, and teaching assistants. MOOCs are a recent development in distance education which was first introduced in 2008 and emerged as a popular mode of learning in 2012. One of the greatest advantages of this model is that it emphasizes creation, creativity, autonomy, and social



networked learning. Participants in the course act as both teachers and students, sharing information and engaging in a joint teaching and learning experience through intense interaction facilitated by technology.

The classification of MOOC is:

- Based on Course:
 - Paid
 - Free
- Based on pace
 - Schedule Driven
 - Self paced
- Based on course instructors:
 - University courses
 - Private firms

OBJECTIVE OF THE STUDY:

This paper is an effort to study four of the most widely used MOOCs in the world. They are,



- EdX:
- Coursera
- Udacity and
- NovoEd

EdX.org:

EdX.org was founded by the Massachusetts Institute of Technology and Harvard University in May 2012. It is a massive open online course (MOOC) provider and online learning platform. It hosts online university-level courses in a wide range of disciplines to a worldwide audience, some at no charge. It also conducts research into learning based on how people use its platform. EdX differs from other MOOC platforms, such as Coursera and Udacity, in that it is non-profit and runs on an open-source software platform.

Its key features include:

1. Interactive video lectures with subtitles and indexing on subtitle.
2. Study materials like books, notes etc.



3. Online test of different types like video embedded quiz, practice sessions, midterm exam, final exam, etc.
4. Virtual Laboratory with interactive interface for user to view the expected simulation.
5. Calendar based schedule.
6. Multi lingual support.
7. Discussion forums.
8. Wiki edits for implementing collaborative learning.
9. Progress reports and other kinds of embedded analytics.
10. Different kinds of assessment systems for submitted assignments. (Open response problems). It includes: Peer Grading, Self Grading, Staff Grading,
11. Machine Grading
12. Emails and Notification facilities for registered student.
13. Provision of certification.
Registering and deregistering from a course.
14. Students also arrange face to face study meet ups using meetup.com
15. Contacting authors through mailing



Coursera:

Coursera is a for-profit educational technology company founded by computer science professors Andrew Ng and Daphne Koller from Stanford University that offers massive open online courses (MOOCs). It works with universities to make some of their courses available online, and offers courses in physics, engineering, humanities, medicine, biology, social sciences, mathematics, business, computer science, and other subjects. Coursera has an official mobile app for iOS and Android. As of October 2014, Coursera has 10 million users in 839 courses from 114 institutions.

The contract between Coursera and participating universities contains a “brainstorming” list of ways to generate revenue, including verified certification fees (started in 2012 as Signature Track), introducing students to potential employers and recruiters (with student consent), tutoring, sponsorships and tuition fees

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14. Analysis of keystroke dynamics during typing is used in combination with webcam images to confirm the identity of fee-paying “signature track” students during tests and quizzes

Udacity:

Udacity is a for-profit educational organization founded by Sebastian Thrun, David Stavens, and Mike Sokolsky offering massive open online courses (MOOCs). It started off with focus on university-style courses, it now focuses more on vocational courses for professionals. Udacity features a small selection of courses focusing almost entirely on computer science (with a couple of maths, physics and statistics courses being made available more recently). Each course follows a fairly strict format, with content delivered through short lecture videos and assessed through Python programming assignments (although apparently support for more languages is coming soon).

Its Key Features include:

1. Start anytime. You don't have to wait for the course you're interested in.
2. Move at your own pace. Caters to self-directed students.
3. Lots of programming and computer science classes.



4. More focus on current on workplace skills.
5. iOS and Android apps.

NovoEd:

NovoEd is a for-profit educational technology company, founded by Stanford University professor Amin Saberi and PhD student Farnaz Ronaghi, that partners with universities, foundations, and corporations to offer massive open online courses (MOOCs) as well as small private online courses (SPOCS). Launched originally as Venture Lab, it rebranded to its present name in 2013. Its philosophy is to advance the online learning experience by making online courses more experiential, interactive, and collaborative.

METHODOLOGY:

As a first step we enrolled into courses in Coursera, NovoEd and edX.org.

- Coursera:
 - Model Thinking
 - New Venture Finance: Startup Funding for Entrepreneurs
- NovoED



- Decision Skills: Power Tools to Build Your Life
- edX
 - Entrepreneurship 101: Who is your customer?

In case of Udacity we consulted with two IT professionals working in TATA Consultancy Services who have done courses from the platform. These courses included:

- iOS Developer
- Introduction to programming

As a second step we also conducted secondary research over the internet in order to understand in-depth the key features of the MOOC platforms.

MOOC PLATFORMS COMPARISON CHART



Features	EdX	Coursera	Udacity	NovoEd
Founded & Owned by	MIT & Harvard University	Andrew Ng and Daphne Koller	Sebastian Thrun, David Stavens, and Mike Sokolsky	Amin Saberi and Farnaz Ronaghi
Web Address	www.Edx.org	www.coursera.com	www.udacity.com	www.novoed.com
Participating Institutes	As of July 2014, there are 35 charter members, and 15 members	As of December 2014, there are 106 University members, and 7 non-university members	Key participants include leading companies like Google, Nvidia, Microsoft, Autodesk, Cadence Design Systems, San Jose State University, AT&T and Wolfram Research	In February 2014, the company announced 16 institutional partners, including Stanford University, Princeton University, University of Virginia Darden School of Business, and Wharton School of the University of Pennsylvania



Number of Registered Users	More than 3 million (as of October, 2014)[15	More than 10 million (as of October, 2014)	1.6 Million	800,000 users
Available Languages	English, Chinese, Mandarin, Hindi, French, Spanish	English, Spanish, French, Chinese, Arabic, Russian, Portuguese, Turkish, Ukrainian, Hebrew, German, Italian.	English	English
Type of Organization	Non-profit	For-profit	For-profit	For-profit
Technology Platform	Open Source Platform	Closed source, Proprietary software	NA	NA
Registration required	Yes	Yes	Yes	Yes



Number of Courses	371 [At a given time about 25 to 30 are active.]	918 [At a given time about 85 are active.]	12 full courses and 26 free courseware [In 2014, the Georgia Institute of Technology launched the first "massive online open degree" in computer science by partnering with Udacity and AT&T; a complete degree through that program costs students \$7,000.]	400 courses
Completion Rate (Certificate Issued)	8.62% (based on 18 courses)	7.75(based on 40 courses)[NA	NA
Mobile Friendly	Yes	Yes	Yes	Yes

Free Certificates	Yes	Yes	No [They still provide a basic “free courseware” version of most classes where anyone can watch the videos, read materials and take the automated quizzes.]	Yes
Verified Certificates	Yes [is called the Verified Certificate of Achievement and is only available on a few classes. The cost is usually either \$50 or \$100.]	Yes [Coursera’s verified SOA’s, available only on some courses, are called Signature Track and cost \$40 or \$50 in most cases]	Yes [To buy access to an individual course on a monthly basis, typically, \$150-\$450]	Yes Typically ranges from USD 35-50
Advanced certificates	Yes [you can earn by completing a sequence of classes in a subject. In the edX	Yes [The Coursera version, called a Specialization certificate, requires a capstone	No	No

	<p>version, if you take a sequence of 3 courses in supply chain management from MIT or a series of 4 in astrophysics from Australia National University, you can earn (and pay for) an XSeries certificate. The total cost is the sum of the fees for each of the verified SOA's in the sequence plus an additional program fee of \$50 or \$75 for the XSeries</p>	<p>project and has other features or incentives included in some sequences, designed by each university. For example, the data science sequence of nine classes from Johns Hopkins University allows the highest performing students a chance to video conference with instructors during their capstone projects. Other sequences promise to publish or showcase the best student work.]</p>		
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Self Paced Scheduled Pace Key Focus	certificate. So the supply chain management series certificate would total \$375 and the astrophysics version would total \$275.			
	Yes	Yes	Yes	No
	Yes	Yes	No	Yes
	Have at least a couple of selections in almost every field that a university would offer its on-campus students. The edX catalog has slightly more weight	Have at least a couple of selections in almost every field that a university would offer its on-campus students. Coursera's catalog is more balanced, but they also have developed an	Udacity's strong point is computer science, programming and math. In fact, they have few classes outside of these areas, although one of their most popular is a business class titled	NovoEd specializes in providing courses on management, design thinking, sales skills, and other business competencies.

Work with partners	on the sciences, technology and medicine, perhaps because of their relationship with MIT. But they do have plenty in the humanities, arts, social sciences and professions like public health.	extra specialty in professional development for teachers, with 52 courses in that area.	How To Build A Startup. Nothing in Humanities and Arts. It concentrates on courses that provide specific skills for workplace readiness.	
	Here teachers seem to work more independently, and there is more variable quality. It feels to a student more like hearing from an	Here teachers seem to work more independently, and there is more variable quality. It feels to a student more like hearing from an individual professor at a	Their model is to have visiting teachers work within an established format, so the classes have a consistent and familiar feel across the platform. If you like the	Its intuitive instructor interface combined with real-time analytics, allows the instructors to respond to student learning as it happens to deliver



Partnership variety	individual professor at a specific university, but a student can't assume the structure of one class will be repeated in another or that the teacher has much guidance on teaching in an online environment.	specific university, but a student can't assume the structure of one class will be repeated in another or that the teacher has much guidance on teaching in an online environment.	format of one Udacity class, you'll probably like all the others.	necessary adjustments and interventions to make your instruction more effective. It can also be customized to create a seamless experience for on-campus students in a hybrid classroom by enabling rich interaction with the instructor and each other both on-campus and online.
	edX hosts classes from the expected lineup of elite universities and	Coursera has the largest variety of university partners around the world, and their other	Udacity often develops content with corporate partners like Salesforce or 23andMe to ensure	NovoEd has a mix of University Partners Foundations and Other Education Partners

Difficulty and skill level	liberal arts colleges in the US, along with a significant number of schools in Asia. They also have partnerships with The International Monetary Fund and the Linux Fund.	partners include The Museum of Modern Art, The American Museum of Natural History, The National Geographic Society and The World Bank.	that the material is current.	Corporate Learning Partners
	Launched with introductory “freshman year” courses, but gradually they are ladderding up into more advanced classes on many subjects. Have few	Launched with introductory “freshman year” courses, but gradually they are ladderding up into more advanced classes on many subjects. Have few courses designed for	Launched with introductory “freshman year” courses, but gradually they are ladderding up into more advanced classes on many subjects. Have few courses designed for	Currently NovoEd mostly focuses on providing introductory level courses, though they have a few advanced courses.

	courses designed for younger learners like high-school students.	younger learners like high-school students.	younger learners like high-school students.	
Usability of the discussion forums	<p>The edX version is less intuitive to navigate or to sort by topic, by date or by what's already been read.</p> <p>The formats are unwieldy and difficult to navigate. Have not been integrated to any kind of live chat feature on their open versions, so it's difficult to get a fluid</p>	<p>Compared to edX, Coursera has a better discussion forum format. However, they are still unwieldy and difficult to navigate. Have not been integrated to any kind of live chat feature on their open versions, so it's difficult to get a fluid conversation going with classmates. Students are encouraged to form smaller discussion groups in other social networks</p>	<p>Udacity's discussion forums in the free versions, as noted above, tend to be ghost towns, which is in the nature of the self-paced model.</p> <p>The formats are unwieldy and difficult to navigate. Have not been integrated to any kind of live chat feature on their open versions, so it's difficult to get a fluid conversation going with classmates. Students are</p>	<p>Discussion forums are not intuitive and could attract only a few participants. As in other cases, there is no live chat feature.</p>

	<p>conversation going with classmates.</p> <p>Students are encouraged to form smaller discussion groups in other social networks such as Facebook, but none of the platforms integrate that or facilitate it. Students usually spend a lot of time at the beginning of a class trying to set up their own outside discussion groups.</p>	<p>such as Facebook, but none of the platforms integrate that or facilitate it. Students usually spend a lot of time at the beginning of a class trying to set up their own outside discussion groups.</p>	<p>encouraged to form smaller discussion groups in other social networks such as Facebook, but none of the platforms integrate that or facilitate it. Students usually spend a lot of time at the beginning of a class trying to set up their own outside discussion groups.</p>	
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Foreign languages	edX has a few in foreign languages, but you can't search by that feature to find them.	Coursera offers a large number of courses in languages other than English, though this is a little misleading. In very few of those are the lectures delivered in another language. Instead, the video transcripts and some other written materials are translated.	Udacity so far only has a few classes subtitled in Japanese.	Could find a few courses being offered in Spanish.
	No app yet No Roku or Smart TV app	Coursera has iOS, Android and Kindle Fire apps. No Roku or Smart TV app	Udacity has iOS and Android apps No Roku or Smart TV app	Could not find any app. No Roku or Smart TV app

Individual Development Plan				
View record of learning	Yes	Yes	Yes	Yes
View submissions, feedback and grades	Yes	Yes	Yes	Yes
Personal learning objectives	Yes	Yes	Yes	No
Set priorities and due dates	Yes	Yes	Yes	Yes

KEY FINDINGS

- HOW ARE QUALITATIVE COURSES MANAGED:**

Unlike quantitative courses like computer science or coding, qualitative courses needs a different approach while managing and evaluating the participants online. For instance, while assignments for the courses in Maths or computer science can be evaluated as either right or wrong, the same cannot be done in case of a course in essay writing or story telling or design thinking. These courses exists to develop the creative side of the participants.



In such cases, it is seen that instructors in MOOC platforms like Coursera and Novoed provide with a personal space for the participants. Rather than providing a strict framework to write an essay they provide with guidelines to do the work. Based on these guidelines the participant can write the essays and submit that to the instructor for their feedback. The instructor then provides with individual feedbacks on ways to improve. They also let you know your strengths.

There is also another tier of feedbacks provided by the peers. In NovoEd, there is provision for the peers to go through the works of others and provide their feedbacks. In some cases such as Design Thinking it is mandatory to provide feedbacks to five of your peers at each stage before moving on to the next stage.

The overall ratings given for a particular assignment mostly would be the average of the rating given by the instructor and that of the peers. Apart from providing with basic guidelines to study a course, qualitative courses are handled through constructive feedbacks.

- **TYPES OF CERTIFICATES & THEIR IMPORTANCE:**

MOOCs mainly offer three different tiers of certificates or Statement of Accreditation (SOA):

- **Free Certificates:**



Free certificates are given to the participants who enroll into free courses. They are “honor system” certificates that don’t verify the identity of the participant. This cannot be used for the purpose of showing one's educational qualification.

- **Verified Certificates:**

Verified SOA’s requires the participant to use a webcam and a government ID to confirm his/her real identity and that it was the participant who did the work.

Coursera’s verified SOA’s, available only on some courses, are called Signature Track and cost \$40 or \$50 in most cases . One good thing about Signature Track is that you can usually opt in to it for a couple of weeks after a course has started, so you can wait until after you’ve experienced some of the class before committing.

The edX version is called the Verified Certificate of Achievement and is only available on a few classes. The cost is usually either \$50 or \$100.

Novoed also provides verified courses, which is much similar to that of Coursera.

Verified certificates from MOOC platforms are being accepted as a proof for educational qualification, mostly by companies while applying for a job. This has triggered a large number



of working people to enroll for courses in platforms like Coursera, Novoed or Udacity. The affordability of fees is another reason for its rising popularity among both

- **HELPING THE PARTICIPANTS TO COMPLETE:**

One of the major reasons for the success of MOOC platforms is the course completion rates that it enjoys. Since these platforms are fairly new entrants and offer a number of free courses online under a variety of categories, it is easy to find many people with internet access to join them.

However, the greatest challenge they face is to retain the participants for these free courses.

Platforms like Coursera try to solve this issue by regularly sending reminders and notifications, via emails, about the progress of the enrolled courses. They also inform the registered members about the upcoming courses that would be of interest to them. This helps in getting an increased number of clicks on the course pages by the participants of that particular course and hence increasing the chance of the person continuing their study and even completing them.

However, the case is not the same for Novoed, which sends less number of notifications on both the ongoing course as well as the upcoming ones. This has led to discontinuing of courses by majority of the participants and in reluctance to join in their second course. In this platform a lot depends upon the methodology used by the instructor to keep the participants engaged. Hence



people having good experience in their first course mostly return to enroll in new courses. In short, a gentle and constant persuasion is needed to motivate the course participants to complete the course or even enrolling into further courses.