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## An overview of the world of MOOCs

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### Abstract

Massive open online courses (MOOCs) are one of the most prominent trends in higher education in recent years. The term 'MOOCs' represents open access, global, free, video-based instructional content, videos, problem sets and forums released through an online platform to high volume participants aiming to take a course or to be educated. With time and place flexibility, MOOCs gathers scholars and 'like-minded fellow learners around the globe'. Although it has a great prominence in its implementation, there is a lack of research studies and critical papers examining its current situation around the world. For this aim, beginning with the definition and a brief history of MOOCs, this paper examines it from various dimensions: pedagogical and technological implementations around the world and its research focus. Therefore, a literature review on MOOCs characteristics, timeline of its development and a blend of practical issues with the experiences of well-known MOOCs providers are presented.

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### 1. Introduction

Growing in number in recent years, there are millions of registered users of MOOCs offered hundreds of courses around the world. MOOCs are often released by third party online platforms and developed independently by academics. The history of MOOCs is not very far. The term first appeared in 2008 by Stephen Downes and George Siemens and based on 'connectivist' distributed peer learning model. Following it, in 2011, a few more educational videos were developed by the professors from Stanford University and released through open online platforms supported with free web resources. This was the year, MOOCs exploded around the world; the number of it still extends each day increasingly. Later, they established **Coursera** as an independent for-profit technology in early 2012. In the same year, other independent non-profit initiatives such as **Udacity** (set up Sebastian Thrun) and **Udemy** was established. Following it, MIT and Harvard incorporated their MITx platform into EdX. The other platforms Futurelearn and Iversity followed them which are not US platforms but European. They are delivering

their courses around Europe. Futurelearn is owned by the UK's Open University which a well-known name in the field of distance education with great pedagogical expertise and experience. Iversity is a German initiative which is proud of being able to take advantage of the European Credit Transfer System. They state that their partnered institutions have the opportunity to offer exams that award ECTS credits. Being the only MOOC platform to have courses that offer ECTS credits, they are working to expand this possibility further. There have been few initiatives for MOOCs production in Turkey to release their courses on US MOOC-providing platforms; however, there is not any available MOOCs platform in Turkey so far.

Fundamental characteristics of a MOOC is being open, participatory and distributed:

- Open

Participation in a MOOC is free and open to anyone who has access to the Internet. One might take more than one course and all the content is open to course takers. The work that is generated through the course (both by the facilitators and learners) is shared and available publicly. Finally, there is openness in terms of the learner's role. Cormier and Siemens (2010) in their article explain openness with "When learners step through our open door, they are invited to enter our place of work, to join the research, to join the discussion, and to contribute in the growth of knowledge within a certain field."

- Participatory

The learning in a MOOC is enhanced by participation both in the creation and sharing of personal contributions, and in the interactions with the contributions of others but the participation is voluntary.

- Distributed

MOOC is based on the connectivist approach; therefore, any knowledge should be distributed across a network of participants. Most of the course activity takes place in social learning environments, where participants interact with the material (and each others' interpretations of it). The course readings, and other learning materials available act as starting points for discussion and further thinking.

## **2. MOOCs Models**

The first phase of MOOCs development was called cMOOCs period in the comparatively short history of MOOCs. Since then xMOOCs period has started which included online courses that are structured in a more conventional way and delivered through not simple web platforms but some learning management platforms. Coursera, EdX, Udacity, Udemy, Iversity, MiriadaX and Futurelearn deliver some of the well-known MOOCs platforms around the US and Europe.

cMOOCs (the connectivist MOOCs) are based on "connectivist distributed peer learning model. Courses are typically developed and led by academics through open source web platforms" (p.6)(Universities UK, 2013). xMOOCs(content-based MOOCs) are delivered through proprietary learning management platforms of institutions or individual academics.

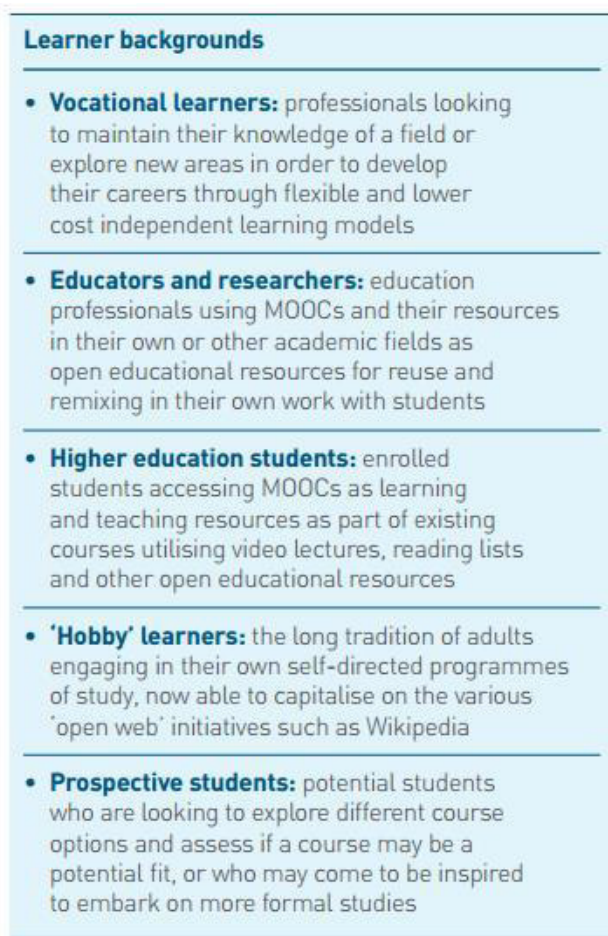
Siemens (2012) states that the majority of MOOCs today are primarily content-based (xMOOCs) and therefore they are different from the original connectivist premise of a MOOC. Some XMOOCs are also criticized for their pedagogical model based on talking head video lectures without any social learning or interaction. Significant pedagogical concerns have been raised by some MOOCs critics:

- MOOCs are stated to be online version of a textbook. (Cuban, 2013 & Harris, 2013)
- MOOCs are claimed not to prepare learners to create, generate, solve and innovate (Siemens, 2013)

### 3. Learners Profile

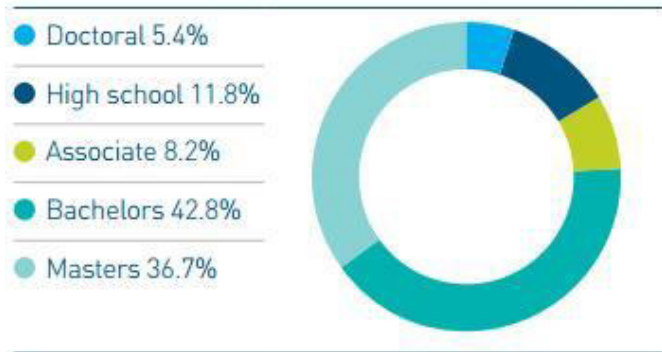
Most of the MOOCs students enroll on the basis of professional interests and objectives, but hobby learners form the largest group. There are few pre-18 students. Learner backgrounds of MOOCs are stated in the Massive Open Online Courses: Higher education's digital moment? (2013) report as follows:

Figure 1: Learner Backgrounds of MOOCs (adapted from Universities UK., 2013)



The US leader Coursera and Europe's leading platform OpenLearn indicate that most of their students are international outside of US and UK. There is a great demand from India particularly for science and technology courses. Coursera, which is still the world leader of MOOCs, attracted over three million registered users after one year from its launch in April 2012. The profile of the students is indicated in Figure 2 according to the Coursera survey data, January 2013.

Figure 2. The profile of MOOCs students (adapted from Universities UK., 2013)



Some other characteristics of students are as follows:

- Most of them are over 18 year-old students,
- The length of course schedule changes between 5-12 weeks,
- Educational videos might be on a specific course or a topic,
- The length of videos changes between 5-10 minutes,
- The language of most courses are in English,
- Due to high number of participants and the instructional approach (peer learning), assessment of participants are made through multiple choice tests, online assessment tests and peer assessment.

The reasons why people are registered in MOOCs platforms are; they would like to be educated in the field or topic they are interested in; second, they would like to have a certificate while applying for a job. Some instructors guide their students to MOOCs to reinforce, support or prepare them for their in-class teaching. Although taking courses on a MOOCs is free; getting a certificate and taking the exams for these courses is paid. The courses are not accredited; researchers are studying for the determination of the right business model and for their accreditation. Every year, there is a MOOCs Summit being held in Switzerland, Lausanne.

#### 4. MOOCs Pedagogy

To run a MOOC, minimal academic support is enough. The pedagogies relevant for MOOCs are available in the field of distance education for years but now these are implemented to meet the expectations of a great many number of people to take a course for free. The prior implementation, cMOOCs, was based on peer and social-learning models; however, the subsequent model, XMOOCs modeled learning-management based online courses including video-based lectures, assessment and messaging.

The latest courses are typically paced around a weekly structure; students can access relevant sources in their own time. Some of these activities are automated multiple choice quizzes, short videos, document sharing and forums. Courses are based on peer-learning model although there is an expert running the course. There are synchronous learning opportunities (e.g. live seminars) besides asynchronous learning events.

When the structure of the courses are examined one can see that the first MOOCs courses included recorded lectures, notes and assignments which were once released previously through a learning management system for campus students. In time, video lecture format of these courses were improved; today more professional videos including animations and simulations with their interactive characteristics are released as MOOCs.

Most of the courses are in the form of adult short learning courses and for professional development, vocational

education and recruitment. Some MOOCs like the Equine Nutrition Course of the University of Edinburgh target the students working with horses around the world, often for the locations who do not have ready access to higher education institutions.

Basically, MOOCs courses based on three areas of student engagement (Grainger, 2013):

- Video lectures: Video lectures in MOOCs have various presentation styles, from talking heads to lecturing instructors. Subtitles (primarily English, but other languages are being introduced) are provided by Coursera. The running time for the lecture videos is usually 5-10 minutes each with in-video quizzes embedded.
- Assessment: Assignments are primarily evaluated through the use of: (a) auto-graded multiple choice questions or auto-graded programming assignments, (b) peer review assessment where students themselves evaluate and grade assignments based on a defined rubric set.
- Forums: Forums are where students post questions and other students replies, and are the main method of student interaction between course takers and instructors. Forums usually consist of general discussion, subject-specific discussion, course feedback, and technical feedback threads.
- Readings: Most MOOCs do not require students to buy books, and most readings are available online or provided by course instructors; however, Coursera makes money through an affiliate program with Amazon.com (Rivard, 2013).
- Live video sessions: In addition to the weekly lectures, there are live video sessions with the course instructor.
- Activities: A range of instructional activities are offered, with the aim of allowing students to further test their understanding of the course concepts.
- Additional video resources: These were scripted videos to help comprehension of scenes.
- Social media: Students are encouraged to continue their discussions on dedicated pages on other social media platforms, such as Facebook and Google+.

A study performed by the University of Illinois Springfield that reviewed 5 MOOCs showed that the MOOCs tended to:

- a) be objectivist rather than constructivist
- b) be primarily teacher-centered
- c) focus on convergent answers
- d) be highly-structured
- e) provide a mix of abstract and concrete content
- f) rely on feedback generated by learners
- g) focus on individualistic learning, with some encouragement towards online meet-ups and discussion forum participation
- h) possess a mix of authentic and artificial assignments
- i) set the user role in the middle between active and passive (Swan, Day, Bogle & Matthews, 2013).

One of the problems MOOCs researchers study on are how to assess learning with those great number learners.

Automated grading systems are being used in general. Yuan & Powell (2013) found that most of the assessment in MOOCs are implemented through multiple choice questions with automated answers and peer feedback. Hardesty (2012) stated new techniques have been proposed for developing more sophisticated automatic grading systems and trends are emerging to try to include feedback from a variety of sources such as machine algorithms, teachers, experts, and peers.

## 5. Business Model

There is not a clear business model has been decided yet for MOOCs. Providers are still exploring potential revenue opportunities. World leaders, Coursera and EdX, have a revenue sharing arrangements between their partners. The following are some of the issues negotiated with the partners:

- The universities should pay a fee for support to develop online courses,
- Profit sharing arrangement should be course specific, depending on the period that a course is maintained, how long it appears in the institution's portfolio,
- A quality assurance check should be administered,
- Partner institutions have the right to use the course platform for their own internal courses.

Some of the ways of generating revenues are educational services such as licensing of courses or certifying the course(s) would be paid. Time to time some surveys are held by the owners of course platforms. The courses are expected to conform required structure and some platforms require courses to quality review processes. Some can even withdraw courses that do not adhere to its required standards.

## 6. Conclusion

Massive open online courses (MOOCs) are one of the most prominent trends in higher education in recent years. It represents open access, global, free, video-based instructional content, problem sets and forums released through an online platform to high volume of participants aiming to take a course or to be educated. With time and place flexibility, MOOCs gathers scholars and learners around the world. MOOCs is the latest trend in the field of distance education which seems to go on for some time which indicate a significant need of research studies on it.

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