

What are MOOCs?



Introduction

Definitions for MOOCs (Massive Open Online Courses) and other forms of online learning, the history of MOOCs, how they were first developed by George Siemens and Stephen Downes and how they have evolved since have been described in this chapter. Before examining the short history of MOOCs and discussing their evolution, it is useful to understand what exactly a MOOC is and what makes it different to similar systems, in particular online learning and open educational resources (OER).

Definitions

MOOCs are about 7 years old, though it is only in the last 3 years that they have achieved a widespread, global, profile. MOOCs have arisen from a long continuum of experimentation with educational technology and online learning, and with pedagogic approaches that are made possible through technology. And as with a small number of other technological innovations, the results have then been replicated many times since to create an established and well-understood model that is being used world wide.

There is no shortage of new terminology and acronyms in the field of educational technology, and many of the terms are used interchangeably, or with subtly different meanings.

The most commonly used terminology that is relevant to MOOCs is summarized below:

- Technology-enhanced learning or e-learning: any technology that is used to support a learning experience. This may or may not use the Internet, so electronic white boards and interactive polling systems are both forms of e-learning technologies, as well as learning systems such as virtual learning environments or learning management systems, that rely upon Internet technologies in order to deliver content and connect learners together.
- Online learning: learning that takes place online using Internet technologies. It will rely upon e-learning systems in many cases.
- Open educational resources: digital content that is licensed so that it can be used for educational purposes by others than the content owner. Licenses vary and may be broad and inclusive or more narrowly defined, for example, only allowing not-for-profit use of the resources. OER are also supported by an international movement that aims to make increasing amounts of digital content available for free, public use.
- MOOC: a specific online course that is openly available to unlimited numbers of participants, free of charge. It is also a form of online learning and MOOCs use educational technology in order to function. They may also use OER as their main source of content.

MOOCs have the following characteristics:

- **Massive:** MOOCs are intended to be run at scale, with hundreds or even thousands of participants and without any limit to student numbers being imposed.
- **Open:** MOOCs are intended to be open—with the word “open” used to imply that access to MOOC is both free of charge and also that access to MOOCs is unrestricted. MOOCs have no entry requirements and are open to learners of all educational background, age, and location.
- **Online:** MOOCs are delivered completely online and involve no face-to-face contact. They are delivered through Internet technologies and so make it easy for students to communicate with each other while learning and for students to access resources that are available elsewhere on the web.
- **Course:** One of the key attributes that differentiates MOOCs from an open educational resource is that they have the characteristics of a traditional course—they are run during a specific time period, based upon prescribed content, and instruction is provided to the student during that period of time. As with traditional courses, there is also usually an element of assessment included in MOOC, and this may include some form of accreditation (which is a thorny topic and one to which we will return later on).

MOOC terminology

Through this work, we will use some MOOC terminology regularly. We will define these terms here in order to be clear about the differences between each of them.

MOOC(s): The individual online courses that are made available for anyone to study.

MOOC platforms: The branded online systems that are used to host MOOC courses.

Coursera, EdX, Udacity, and FutureLearn are some of the best known at present.

MOOC providers: The universities or other organizations that create the MOOC courses and, in most cases, provide teaching and learning support to MOOC students through the online platform.

Even in their short history of development, MOOCs have already diversified into other models, for example, MOOCs which are aimed at smaller groups of learners and are usually available to a limited group of people, and not open to the general public; these are being called Small Private Online Courses. As the MOOCosphere develops and changes very quickly, many other new models and approaches will be developed, with varied models for learning, teaching, and delivery, and different underlying business models. The future sustainability of MOOCs as a model of higher education depends largely upon developing models that have the right combination of learners, delivery, and business model. We will discuss some of the different MOOC models in the case studies and also analyze their respective pros and cons in the final chapters of the book.

Where did MOOCs come from?

This section briefly describes the genesis of the MOOC phenomenon. The first course labeled as an MOOC was created and taught by George Siemens and Stephen Downes, two well-known pioneers of online learning working in Canada. Siemens and Downes share an interest in education and models of learning, with particular affiliation to a

theory of learning called connectivism. Siemens is a leading academic working with this theory, while Stephen Downes in particular had long experience of working at the cutting edge of e-learning practice, leading initiatives in OER, personalized learning, and other areas, and is a respected commentator on some of the most challenging topics of the future of online education.

In 2008, the team taught a traditional, fee-paying course to 25 students at the University of Manitoba but also made the radical and far-sighted decision to open up access to the course to anyone who wished to join it online. About 2200 people joined the students on the course. The course topic was Connectivism and Connective Knowledge, connectivism being an educational theory that emphasizes the importance of connections between people and knowledge. The Internet and social media allow new possibilities for exploring connectivist approaches, as they enable communication between very large groups of people to happen quickly and easily, so the subject matter was ideally suited for the experiment that was to take place.

The hope and expectation of Siemens and Downes was that by opening up the course to a much wider and nonselective group of students, it would provide a rich and fertile ground on which to test out connectivism in practice, bringing together a small cohort of students following a formal educational route with a much larger and more diverse group of interested individuals.

So did it work? It was clearly a fascinating experiment and it comes to life as we read Downes' updates on his experience of teaching the course (Downes, 2008) and subsequent reflections by Siemens and others (Fini, 2009). Downes muses upon the student responses to the course materials, which included weekly videos of himself and others, live discussions sessions (run twice in order to cope with the range of time zones in which students were based), an online discussion forum, and the overall course delivery system, which he adapted from his online newsletter system. Like many ground-breaking initiatives in online learning, this was a live and raw experiment where the teachers had to wrestle with technical systems to "bend" them to work how they wanted and had to carry out their own administration—registering students online in batches—as well as creating digital course materials just days or sometimes hours before they went live.

Some years after the course was taught, it is still considered to have been a success on two levels. First, as an approach to learning and teaching with a large cohort of distributed students, it proved itself to be successful: the use of the digital medium made it easy to gather data about how students interacted with the course content and their level of contribution to class discussion and other activity, such as writing blog posts. The data revealed that students were contributing to discussions, creating content, and engaging with their peers.

Second, the experiment has been considered by many commentators as a successful example of both a different way to construct a course with a much broader cohort and a new philosophical approach to the way that higher education courses are structured and delivered. It is the seed that was sown through this single experiment that has led to the fervor and strong opinions about MOOCs in the last 2 years.

Siemens, Downes, and others spent time and effort reflecting upon their experiences and attempting to describe the theoretical distinctions of their model. In doing this, they coined the terms cMOOC (connectivist) and xMOOC (traditional, see below). cMOOC is exemplified by the original MOOC that was run in 2008; a cMOOC is

taught according to connectivist principles, combining open learning with distributed content. The connectivist network is at the heart of a cMOOC; it may be offered outside a traditional academic institution by a network of interested and specialist individuals, and the student has a lot of autonomy to govern their own interaction with the course and its content, choosing the content that they wish to interact with and the nature of their own participation.

About 2 years after this first MOOC ran, parallel activities were taking place at some of the leading institutions in the United States that would converge with the MOOC experiment to create the phenomenon that we see today.

Daphne Koller and Andrew Ng were both teaching traditional courses in Computer Science at Stanford University and wished to introduce elements of educational technology in order to improve the learning experience for the students (Leber, 2012). They began to experiment with what is now known as the “flipped classroom” model, where traditional, campus-based students use educational technology resources such as online lectures and digitized experiments to prepare for their classes in advance, and use the face-to-face time for deeper interaction with their peer group and teachers. At the same time, Sebastian Thrun, who also taught at Stanford, was carrying out an experiment in online teaching similar to the much earlier Siemens and Downes experiment, but which was making news by attracting some hundreds of thousands of online students.

Learning from these separate experiments converged together and the terminology developed by Siemens and Downes was adopted more widely to give a name to what was seen as an exciting experiment that promised (or threatened) to subvert the traditional models of higher education.

xMOOC

The MOOCs with which we are most familiar today, and which we might describe as traditional MOOCs, are a form of xMOOCs. These are MOOCs that follow a more traditional structure and delivery approach, are probably offered by a recognized academic institution, and are where the course is highly structured and with clear expectations for how the student will engage with the course (see Table 1.1 for more details about the two types of MOOCs).

It is useful to understand the terminology and the part that they play in the genesis of the MOOC. However, the boundaries between the two types of MOOCs are

Table 1.1 The attributes of xMOOCs and cMOOCs

xMOOCs		cMOOCs
Scalability of provision	Massive	Community and connections
Open access—restricted license	Open	Open access and license
Individual learning in single platform	Online	Networked learning across multiple platforms and services
Acquire a curriculum of knowledge and skills	Course	Develop shared practices, knowledge, and understanding

becoming increasingly blurred as more MOOCs are developed, and as new types of MOOC emerge that include characteristics of both types. xMOOCs or cMOOCs will not be referred to specifically through this work, instead as is the norm, generic term MOOC will be used to mean both.

The growth of MOOCs

So we can see that although MOOCs seem to have come out of nowhere, MOOCs have their own short history, which builds upon and is rooted in much longer term research and development in online learning, learning content, and trends such as open education, and investment by both public and private organizations in developing new online learning tools and courses.

MOOCs are thus the latest step in a global trend of growth in online learning. This is seen in all parts of the world, both developing and developed. The Sloan Consortium survey of online learning in the US (Sloan, 2013) shows growth from 1.6 million online students in the US in 2002 to 7.1 million in 2013.

At the same time, attitudes to online learning by university management are increasingly positive; also cited in the Sloan report, the percentage of academic leaders rating the learning outcomes in online education as the same or superior to those as in face-to-face instruction, grew from 57% in 2003 to 74% in 2013. In the US, online courses have become part of the fabric of higher education, with 61% of liberal arts colleges offering some online courses (Parker, Lenhart, & Moore, 2011).

When we come to look at MOOCs, we see a remarkable growth in the numbers of courses provided and the numbers of MOOC students since large-scale MOOCs began in 2011. At the time of writing, in April 2014, there are 2230 MOOCs available, growing at an astonishing rate from just 409 MOOCs in March 2013, with a particularly large increase in new courses being launched in early 2014, as growing numbers of organizations committed to joining the MOOC market (Open Education Europa, 2014).

We do not know exactly how many people have signed up for MOOCs but even a conservative estimate, based solely upon the students registered with the “big three” platforms, Coursera, EdX, and Udacity, puts the number of registered MOOC students at over 8.5 million (Blake, 2014). These figures are increasing every day as the awareness of MOOCs spreads beyond the early adopter community, of the tech-savvy individuals, to the broader community of learners, with particularly strong growth outside the western world (Blake, 2014).

Criticism of MOOCs

As we can see from the figures above, many millions of people have so far signed up for MOOCs. MOOC completion rates are not so encouraging, however, this being one of the main criticisms made of MOOCs, particularly where they have been seen to suggest that they offer an alternative to formal higher education. It is useful to look at the data behind the impressive MOOC recruitment figures in order to understand the reality a little better.

Completion rates for the large-scale MOOCs, such as Coursera and EdX, are typically less than 13% of those who registered for the course before it started, with many MOOCs seeing completion rates as low as 4% or 5% (Jordan, 2014).

Taking one particular institution as an example, the University of Edinburgh had over 300,000 students registered for the six Edinburgh MOOCs that were run in 2013. Statements of Accomplishment (which indicate that the learner has viewed most or all of the MOOC content) were issued to only 12% of those who initially registered to take the MOOC—a still impressive 30,000 students, but considerably less than those who had originally registered to take the MOOC.

If we equate a learner who registers for an MOOC with one who registers for a traditional university course, these statistics appear to be fairly damning. However, there is much debate about how to calculate completion rates for MOOCs. MOOC providers and researchers alike have pointed out that looking at numbers of those who register for an MOOC, before the MOOC starts, may not be the best way to make a realistic prediction for active MOOC students. For example, for the student numbers given above, the University of Edinburgh discounts all those who registered for the MOOC but did not access the first week of the course. They use as their starting point the concept of “active learners,” that is those who make an actual commitment of time to start to study the MOOC, rather than anyone who registers for an MOOC. When this definition of an active learner is used, then the completion figures are 21% (MOOCs@Edinburgh Group, 2013); and for some other MOOCs, completion rates have been as high as nearly 50% (Jordan, 2014).

However, we choose to analyze them, the completion figures for MOOCs to date do not compare in any way with the completion figures for traditional higher education courses, and this seems to substantiate one of the main criticisms of MOOCs—namely, that many people sign up for them but few complete them.

This is, though, using the wrong comparators for MOOCs. We should not compare the motivation of someone who signs up to a free, online course with that of someone who commits substantial financial and personal resources to a traditional higher education course. It is not realistic to expect all those who register initially for an MOOC to take any of the course, let alone all of it. We need to think again about the expectations and priorities of the target audience of learners before we seek to analyze the statistics for completion and try to understand the motivation of the learners. This is clearly a very complex issue, and made even more so when we see that completion rates for individual MOOCs can vary widely—in the Edinburgh case, “with ranges of 4–44% and 2–36%, respectively, across the individual courses” (MOOCs@Edinburgh Group, 2013). We will return to this issue in later chapters.

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