

## MOOCs in Higher Education - Options, Affordances, Pitfalls (Jul 13)



by [Apostolos Koutropoulos](#)

July 15, 2013 – part 1

Recently, I was discussing the current state of MOOCs (massive open online courses) and their broader applicability to academia with colleagues. MOOCs started in academia and spread like wildfire in 2012 when certain “elite” Universities started offering their courses for free on the web through their own means or through venture-capital funded startups like Coursera. But my colleagues had questions. What about those Universities that perceive themselves not in the same league? Can they offer MOOCs as well?

In this article, I expand on the first part of the poster session I presented at NERCOMP2013 on MOOC pedagogy, technologies, and the role of the instructor. As you read this article, keep in mind that the goal isn't to demonstrate that one type of MOOC is better than another. The terminology in this article means something in our *current* context. This is part one of two parts, and in it I will cover some basic history, the two types of MOOCs that have evolved to date, and some observations about technology and pedagogy. In part two, I will write about the role of assessment, credentialing, copyright, and some MOOC principles that I believe will be informative and useful.

### **cMOOC? xMOOC? What the MOOC?**

If you didn't know of the history of MOOCs, you'd think that MOOCs just appeared last year through a few enterprising individuals from “elite” schools. MOOCs certainly were the work of enterprising individuals, but they are certainly not that new, and they didn't originate from “elite” universities.

In the beginning there was the MOOC, and the MOOC was good! Well, OK, maybe it didn't happen in such a biblical way! But the (brief) background on MOOCs is quite interesting. MOOCs first appeared in 2008, with the development and offering of the *Connectivism & Connected Knowledge* course.

This type of MOOC has been retroactively named a “cMOOC,” or “connectivist MOOC” although I also think of them as constructivist MOOCs (see Wikipedia links at the end of this article for quick overviews). These cMOOCs are characterized by a certain DIY (do it yourself) or “edupunk” feel. In 2012, with the introduction of ventures like Coursera and edX, we saw the rise of what George Siemens in his July 25, 2012 blog entry called the xMOOC (please see the References for a link). The xMOOCs are another camp entirely, institutional courses materialized in Coursera and Coursera-like platforms.

MOOCs are an excellent example of the progression of the open education and open source movements that gave us edupunks, Creative Commons, open educational resources, and open courseware to name just a few things. Without some of these technologies, resources, and *ethos*, MOOCs and their precursors would not be possible.

## **Pedagogy and educational philosophy**

Technology, pedagogy, or instructional design? Where to start first? All of these elements are integral in teaching and learning these days, regardless of learning context. It's also quite important for MOOCs.

### **cMOOCs**

In thinking about the pedagogy involved, cMOOCs tend to focus on constructivist and connectivist approaches to learning. Whether you place any stock in connectivism is beside the point; this is one of the theoretical underpinnings of cMOOCs.

Learning happens when students interact with authentic materials, in learner-controlled spaces. These learner-controlled spaces often take the form of a personal learning environment (PLE), and in such spaces learners choose their connections and sources of materials. cMOOCs encourage active exploration on the part of the learner, sharing with other learners, generating knowledge, and reflecting on learning. If one were to compare a cMOOC to an on-campus course, the most similar type of course is the seminar. Another interesting note is that the cMOOC, more often than not, tends to be a collaborative effort in design and implementation. If you look at the last two years of cMOOCs, you will notice that most have had more than one facilitator interacting and guiding learners.

### **xMOOCs**

xMOOCs, up to this time, have tended to focus mostly on instructivist approaches to teaching. The instructor, along with a support team, record and serve video lectures to learners. These video lectures, along with any supplemental materials, are then practiced through formative testing, or laboratory simulations if applicable, and assessed in some sort of graded activity.

## **Pedagogy and opportunity**

As far as pedagogy goes, the challenge lies in bridging the gap between the *confining* instructivism of xMOOCs and the perceived *complete openness* of cMOOCs. The goal is to help scaffold learners to enable them to be lifelong learners in open environments in order to enable them to pursue their own learning activities. Pure connectivism or instructivism shouldn't be the goal. Your subject matter, the level at which it is offered, and your instructional goals should be dictating what method you pursue for teaching your course. An entry-level course, with no pre-requisites, can, and most likely will, be taught differently compared to a higher-level course that does have pre-requisites. Up to now, it's been the case that xMOOCs are the courses with no pre-requisites, while cMOOCs have some sort of pre-requisites associated with them. While it's not impossible for a learner with no pre-requisite knowledge to jump into a cMOOC, it is more difficult as they get bombarded with "basic" and "advanced" information in a course.

The opportunity with MOOCs of either type is that you can reach many learners, and proper design can help learners excel. The pitfall is not preparing your learners (or even the instructor) for the instruction style in the MOOC. One common issue for learners in MOOCs, especially cMOOCs, is the overabundance of information coming to them, from all directions, that comes from a constructivist and connectivist teaching style. By helping learners cope with the chosen instructional strategy you are helping them be a little more successful in the course.

## **Technologies Used, and Technology Considerations**

The technologies used in MOOCs, of both types, do vary considerably. On the one hand you have cMOOCs bringing together diverse platforms to enable learning through a common platform and through a learner's PLE. As such, we can consider cMOOC organizers as DIY type of people. Each cMOOC is different in that it can use a variety of different technologies to accomplish the learners' needs and the designer's intent. You can think of the technology chosen by cMOOC designers and organizers as the *town square* where learners come to listen, engage, share, and collaborate, but they are free to take their learning away with them to other spaces.

In the past, cMOOCs have used a traditional LMS, such as Moodle, as well as technologies such as wikis, blogs, [Twitter](#), [gRSShopper](#), or [Wordpress](#)—just to name a few. *Learning Analytics & Knowledge 2011* used Moodle as their town square while *Current and Future State of Higher Education* used Desire2Learn. Other cMOOCs have used other technologies. For example, *Introduction to Open Education 2011* used WordPress, while *mobiMOOC* used Wikispaces and Google Groups. Perhaps the most interesting use of technology was by [GamesMOOC](#), which uses a [guild-hosting site](#) that allows guilds from massively multiplayer online games to create a spot for their groups outside of the game. This is quite apropos, given the subject matter of MOOC. All things considered, cMOOC technology seems to be chosen based on the intended educational outcomes as well as the pedagogical approach, and cost (*free* or close to it).

xMOOCs appear to be working mostly on standardized approaches to delivering and assessing courses, using LMS-like technologies such as the Coursera platform. These platforms for offering MOOCs seem to stem more from a traditional conception of what education is, and how educators should deliver it. Thus, these MOOC-LMSs have traditional predefined spots for elements such as content, assessment, and grading. The software design seems to be influencing the design and pedagogy of these initial xMOOCs. In an xMOOC the LMS is more like the museum. Learning can take place at the museum, but it's pretty hard to engage with the material and with learners outside of the confines of the physical building. Thus, for some people, xMOOCs fail the "MOOC test" since they are not distributed, "distributed" being one of the hallmarks of a MOOC (Cormier, 2010).

Regardless of whether you go with a DIY or a MOOC-LMS, there are other considerations to keep in mind when it comes to technology. As discussed in a recent panel discussion (Koutropoulos et al, 2013), if you want to produce videos for your course, you need to think about accessibility (for example, captioning), storage of original video and final cuts, backups, creating archival materials, and, of course, serving these videos. These are major considerations if an institution decides to endorse and support a MOOC instead of the MOOC being just an individual faculty's initiative.

When it comes to technology in MOOCs there are quite a few challenges. A key challenge is to scaffold learners to work and learn in massive online environments regardless of the technologies you pick. Motivation is a key factor in implementation. MOOCs are not like a traditional online course, so the same motions and notions from the learners don't necessarily apply. Learners need to be able to feel comfortable learning in MOOCs, using and engaging with different technologies, and engaging with higher-than-average numbers of fellow learners. Part of this is helping learners develop a filter for information, and part of it is making sure learners coming to your MOOC have some basic information-literacy skills.

Distributed courses, such as those in cMOOCs, offer greater flexibility where technology molds around course outcomes, and not the other way around. This, however, increases complexity, and learners who are not prepared may feel overwhelmed and drop out. The major pitfall in using technology for MOOCs is also seen in traditional courses: starting with a technology can negatively influence pedagogy and instructional design, thus forcing you into a specific teaching style and delivery method. With the cMOOC crowd this may not be as big a deal; however, when institutions sign deals with a MOOC-LMS company these institutional decisions can, and do, affect pedagogy. Then the question becomes: how nimble are these platforms when it comes to adapting to specific pedagogical needs?

### **Role of the instructor**

The role of the instructor varies as well between the two different forms of MOOCs. I should note here that these *descriptive* roles are from the perspective of a learner who has taken a variety of both xMOOCs and cMOOCs. This isn't an exhaustive study, but rather an observation on my part.

cMOOC instructor roles seem to revolve around the instructor-as-designer, and instructor-as-*more-knowledgeable-peer*. cMOOC instructors can be thought of as course facilitators, being where the action is, and in this role they seem to put the course together themselves and remain active in it throughout. It's also not uncommon to have weekly experts facilitate different aspects of the cMOOC. The role of the instructor in cMOOCs has decidedly been one of "a guide on the side."

xMOOC instructors, on the other hand, seem more like an authoritative SME, and sometimes a facilitator. A team of designers and implementers, and not necessarily the instructor herself, designs and puts together the xMOOC. The xMOOC currently resembles television broadcast-based courses, coupled with the immediacy of the internet to expedite communication and connections with peers. Instructors seem to be far more removed from the day-to-day activities of the MOOC, lending to a potential feeling of disconnect amongst the learners when they are not experiencing that instructor's presence. Thus, most xMOOCs, to date, seem to have an uneasy balance between the instructor as "sage on the virtual stage" and that of "the ghost in the wings."

The instructor role and presence in a MOOC poses a considerable number of challenges and pitfalls, as well as opportunities. Instructors, for the most part, seem apprenticed into teaching, thus they replicate existing structures. Recording videos and playing them back is a regression of online education back to the mid-to-late 1990s. In the last ten-to-fifteen years we've learned a lot from research and practice in online education that we can put into MOOCs.

Rewarding teaching and learning experiences can be had with MOOCs. This is the major opportunity. However, the role of the instructor needs reconceiving, and it needs to build upon what we know from research in online education. We shouldn't be turning back the clock, because what works for a face-to-face audience does not necessarily work, as is, in an online environment, and in a massive environment it has the potential to fail massively.

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July 22, 2013 – part 2

In part 1, I began expanding on the poster session I presented at NERCOMP2013 on massive open online course (MOOC) pedagogy, technologies, and the role of the instructor, along with some basic history, the two types of MOOCs that have evolved to date, and some observations about technology and pedagogy. In part two, I aim to expand a bit more on my poster: the role of assessment, credentialing, copyright, and some of my MOOC principles.

### **Assessment and credentialing**

When thinking of courses we invariably think of how we will assess mastery, or at least gain some understanding of those who complete it. This is also true for traditional courses that are offered for credit. Alongside assessment there is usually a credentialing issue, which in traditional education is taken care of by awarding degrees or certifications. Even if there is no summative assessment of mastery by an SME, there ought to be some sort of formative assessment to let the learner know how well he or she is doing in the course and what areas still need to be worked on.

### **cMOOC practice**

Currently, cMOOCs generally don't provide formal instructor assessment. (See Part 1 of this series if you need the definition of "cMOOC.") There have, however, been mechanisms for peer review, feedback, and "remixing" of knowledge and information. These seem to be at the core of the cMOOC identity. These peer reviews are by identifiable peers. The technological decisions made in cMOOCs that allow distributed knowledge to be funneled into the course's town square make it possible for participants in a cMOOC to demonstrate their work and get feedback, or to collaboratively work with one another.

cMOOCs typically don't credential their learners; however, there have been some MOOCs that have begun offering badges as part of their of the learning process. These badges reward learners both for "staying the course," (demonstrating certain behaviors, outcomes, or deliverables), and for deviating from prescribed paths (forging your own learning). Typically, [Mozilla's OBI](#) is used, but Purdue's [Open Passport](#) is also an option. Only one MOOC, mobimoooc (2011), has awarded certificates of participation to learners that met certain criteria.

### **xMOOC practice**

Assessment in xMOOCs utilizes automated testing and anonymous peer reviews. Formative assessment can be undertaken while students view course materials, but also as part of module quizzes. Quite a few courses seem to work on mastery grading, which allows learners a lot of attempts to pass a quiz in a satisfactory manner. There are also quite a few courses that give learners a limited amount of time and a limited amount of retries at these auto-graded assessments.

Peer assessments tend to be assignments of shorter length (250 to 700 words) around writing prompts. These assignments are graded anonymously by peers with a published rubric. In order for a learner to see their own grade on the assignment they need to review at least three peers. Anonymous peer reviews are matched automatically by the LMS and the feedback received can vary greatly. Rubrics for assignments are a way for learners to assess each other; however, if learners aren't trained on how to provide good feedback, or don't understand the rubric, they may not grade good assignments accurately, nor will they provide good feedback. They don't always count participation in the discussion forums of the course as part of the assessment criteria for the course; but if it is counted, it's only counted quantitatively, not qualitatively.

xMOOCs commonly award a certificate of completion if a learner achieves over a certain score on assessments. The threshold for this score can vary, but it can start at 50 percent. Since the criteria vary on how to achieve a certificate of completion it's hard to really compare what the value is, if any, of a certificate of completion.



## Comparing practices

The challenge thus lies with the purpose of the course and the value of assessment. cMOOC learners should be able to demonstrate what they learned in manners that are meaningful to them and applicable in their environments. xMOOCs seem more focused on replicating existing structures, thus graded and time-constrained summative assessment seems to be a staple of the course. Assessment by an SME is difficult in massive environments. What it means to be assessed, how assessment is undertaken, and for what reasons needs a fundamental rethinking in the MOOC context. Replicating existing structures is not an appropriate course of action, and herein lays the major pitfall for MOOCs. If you replicate those structures too closely, free learners may demand free accreditation.

## Copyright, Creative Commons, OER

Given that MOOCs base their genesis and existence on freely available materials, through [Creative Commons \(CC\) licensing](#), [Open Educational Resources \(OER\) repositories](#), or [Open Access publishing](#), I firmly believe that you can't call something a MOOC if there is a barrier to entry; it's not "open" if you charge for it. Courses that charge to be part of the course don't fit the MOOC model. They may be massive online courses, but they are definitely not "MOOCs."

There is some disagreement among MOOC participants as to how free a course has to be in order to qualify to be a MOOC. For instance, some believe that if a paid textbook is required it disqualifies the course as a MOOC. I don't. One can get the textbook from a library and still participate in the MOOC. Some might believe that Coursera's signature track doesn't qualify as a MOOC because it costs. I don't; the signature track is above and beyond the free version. This could be thought of as freemium MOOC: the certification might cost, but the cost to get the knowledge from the course, sans certification, is still basically free. My final MOOC principle is that if you are using open resources, then any new knowledge generated should also be open.

With that said, cMOOCs seem to strive to be as open as possible. cMOOC creators try to use open content, as well as release their MOOC content under an open license, or leave the MOOC available after its end for anyone who wants to use these resources. This is encapsulated in the four types of activities of cMOOC: aggregate, remix, repurpose, and feed forward (Siemens et al, 2012). These four activities also encapsulate the *ethos* of the cMOOC. After all, aggregation, repurposing, and remixing is not easy when encumbered by traditional copyright. Without allowing open content to be fed forward, others cannot aggregate, remix, or repurpose.

xMOOCs tend to retain copyright of all material. A brief survey of the three big platforms (Coursera, Edx, Udacity) earlier this year shows that their terms of service are strictly in opposition of the four original MOOC tenets. xMOOC aren't actively creating open materials. However, this may change. In March 2013, edX announced a change in its terms of service that make the default for its materials public domain. This may have to do with the fact that edX is a nonprofit venture, but it would be interesting to watch this space. The opportunity here is one of notoriety. If your institution is associated with quality open work, that could have a potential positive impact to your campus. However, good work of that magnitude could cost a lot depending on the discipline and the course.

## Initiative: Personal or institutional?

In thinking about *who* initiates the MOOC, there are two usual suspects: the faculty and the institutional administration. This isn't really a cMOOC/xMOOC question; rather, the idea here is to think a little about the implications underlying who initiates the conversation and any eventual implementations of a MOOC.

Major MOOC efforts need to be faculty led, not institutionally forced. This means that course design, technology selection, and implementation needs to come from faculty and instructional designers, and not based primarily on which provider the university has a contract with. However, MOOC efforts do need institutional support if they are going to succeed. A group of faculty can design, implement, and facilitate a great MOOC, but the university needs to create conducive environments for MOOCs to flourish, especially with interdisciplinary topics. Traditional courses are siloed into specific

departments; however, MOOCs have an opportunity to break down those traditional barriers to create courses that touch upon many interconnecting disciplines.

MOOC efforts need time for design and internal reflection. What works for one MOOC in one discipline may not work for other courses in other disciplines. This means that you can't force anyone to facilitate or develop a MOOC, and you can't just take an existing course and put it in MOOC format. Also remember that MOOCs are experimental, and we should be sharing our findings with the community so that we can improve upon them. The challenge here, for institutions, is to enable MOOCs as a two-way learning tool and not worry about being left out of the party, as some institutions might feel.

### **Rules of thumb**

Regardless of the MOOC you plan on offering, I propose four rules of thumb: Put learners first; do instructional design first; pick your faculty carefully; and don't worry about the dropout rate!

Under no circumstances is it acceptable to just close the doors of the course because things aren't working out. This is one important way in which you can think of your learners first. We saw a bad example of this early in 2013 when Fundamentals of Online Education closed its doors after just one week online (Kolowich, 2013a). The course did have issues, but instead of working through them and learning from the experience, the doors were closed with little notice to learners. Just like in traditional courses, if something isn't working, modify it on the fly. In MOOC cases, your support team should be there to help the instructor(s) of the MOOC to resolve issues. Closing your course's doors is bad for the learner, and subsequently bad for your own reputation.

Second, instructional design should come first. While it's healthy for educational technologists to know of the affordances of each platform, and how those affordances fit with pedagogical goals, there is no reason to go with one platform over another exclusively. We shouldn't adopt the same stance with the MOOC-LMS as we did with our traditional course LMS. We ought to be open to educational experimentation for the benefit of teaching and learning. Sticking to one technology or provider is potentially detrimental to our learning process.

Third, when deciding who will facilitate the MOOC, if it's institutionally supported, there needs to be some expectation setting. Recently a professor quit his MOOC because of philosophical differences over how the course should run (Kolowich, 2013b). While they didn't shut down this course like the other course was, it's still not great PR for the institution. There are institutions that do vet their online courses before they go live; I am sure that this is probably the case with xMOOCs as well in some institutions. Why not vet the instructor as well? Teaching online is different from teaching face-to-face, and facilitating a MOOC is different from both of them. The medium is experimental and instructors do need to adapt their teaching. This is how we will all learn more about teaching and learning in MOOCs.

Finally, have a better understanding of what the "dropout" numbers mean. I think that dropout is an inaccurate term because it lumps learners together who don't belong together. For instance, those who were just window-shopping in the MOOC; those who know some of the materials and just want a refresher so they only participate sparingly; and those who are honestly interested in learning, but the course is failing them in some way or extracurricular issues are interfering with their participation. I am sure there are other categories as well.

The goals of each category of learner are different, and only the last category's goals come close to approximating what I consider a traditional learner's goals. Thus, we have to put aside the "funnels" (Sonwalkar, 2012) where we see many learners starting, but have few "completing," and put aside snarky remarks comparing dropout rates between traditional online learning dropout rates to MOOC dropouts (Young et al, 2012) because there is no one-to-one correlation.

With this, go forth and MOOC, and remember, "[If you're willing to fail interestingly, you tend to succeed interestingly](#)" (Edward Albee).

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