MOOCs: Game Changer or Passing Fad?

The Future of MOOCs: Adaptive Learning or Business Model?

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Abstract

Currently, many MOOCs are designed as a collection of videos with a forum using some traditional distance learning models, but they do not promote adaptive and personalized learning. These features, together with the quality of the training process, must be the main challenges for the coming years.

These types of courses can have a formative role in higher education, not only in countries where MOOCs are already offered but also in less economically developed countries. To make this possible MOOCs must adopt different teaching strategies to promote personalized learning and offer some form of accreditation and certification.

The future of MOOCs can be understood if we approach it from five dimensions: the teaching model, monetization, certification, adaptive learning and MOOCs for developing countries.

Keywords

MOOC, adaptive learning, certification, higher education, teaching model, quality

El futuro de los MOOC: ¿aprendizaje adaptado o modelo de negocio?

Resumen

En la actualidad, muchos cursos MOOC se diseñan como si fueran una colección de vídeos a los que se añade un foro, lo que implica seguir un modelo de enseñanza a distancia tradicional sin promover un aprendizaje adaptado o personalizado. Aspectos como estos, junto con la calidad del proceso formativo, deben constituir uno de los principales retos de los MOOC en los próximos años.

Este tipo de cursos pueden desempeñar un importante papel formativo en la educación superior, no solo en países donde ya se está ofreciendo este tipo de formación sino en países en vías de desarrollo. Para hacerlo posible, los MOOC deben adoptar diferentes estrategias de enseñanza para promover un aprendizaje más personalizado que conlleve también algún tipo de certificación y acreditación de las enseñanzas.

El futuro de los MOOC debe pasar por afrontar cinco dimensiones prioritarias: el modelo pedagógico, los procesos de monetización, la certificación, el aprendizaje adaptado y los MOOC en países en vías de desarrollo.

Palabras clave

MOOC, aprendizaje adaptado, certificación, educación superior, modelo pedagógico, calidad

Introduction

Higher education regularly speculates about how to accommodate more learners at lower costs and facilitate the spread of knowledge. Many possible scenarios include an important role for technology and online learning. Massive open online courses (MOOCs) could be an interesting strategy towards these objectives, even if these are not the goals of most institutions offering MOOCs.

MOOCs now have more than 5 million students worldwide, of which most are aged between 26 and 45 and have university degrees or previous higher education studies. MOOCs provide these students flexibility and free courses on a variety of themes. However, they are not accredited and the level of abandonment (drop out) from the courses is between 60% and 90% of students enrolled.

In this article we review five dimensions that can promote the quality and effectiveness of MOOCs as a contribution to higher education.

Trends and challenges to ensure MOOCs have a sustainable future

John Henry Newman, an English Roman Catholic cardinal, defined the post-Enlightenment university in *The Idea of a University* (1858) as "a place for the communication and circulation of thought, by means of personal intercourse, through a wide extent of country". But he warned that without the personal touch, higher education could become "an icebound, petrified, cast-iron university" (The Economist, 2014). That is a warning for MOOCs as well.

The MOOC world is evolving quickly with new pedagogical types and new users as the concept gradually matures. The MOOCs of the future will probably be different from what they are now as we see change on five dimensions: the teaching model, monetization, certification, adaptive learning and MOOCs for developing countries.

The MOOC teaching model

The xMOOC model that emerged in 2012 had not changed much by 2014, with completion rates and participation rates just as low as they were when concrete data on completion rates appeared in 2013 (Parr, 2013). Sadly, it seems impossible to run a cMOOC (a course based on the pedagogical principles of connectivism) today on one of the big provider platforms as the software tools do not allow for the type of interaction and collaboration among participants that characterize cMOOCs' teaching model (UNESCO, 2013; Gaebel, 2014). xMOOCs, however, have a fairly linear approach with clearly defined (learning) outcomes and quiz-type examination methods and lectures. This xMOOC model generates criticism about its influence on higher education. Many teachers consider that MOOCs cannot replace a teacher because learning has to be interactive. Furthermore, it does not allow for laboratory experiments, clinical practice or medical simulation (Bates, 2012; Daniel, 2012; Dillenbourg, et al., 2014; Hollands & Tirthali, 2014).

The xMOOC teaching model is essentially a collection of videos with a chat forum. Many teachers and researchers consider that the MOOCs' teaching model is nothing new since it is based on watching TV programmes —live or

recorded— on the internet or thematic YouTube videos. A student can find quizzes, discussion groups and peer support on any theme through social media, forums, blogs, and many online portals. Do participants in stand-alone MOOCs gain useful skills and knowledge that can be applied in productive, real-world contexts (Hollands & Tirthali, 2014: 169)? Far from the hype that MOOCs will replace traditional universities, anyone who studies the evidence soon sees that MOOCs augment rather than replace formal educational models (Cann, 2013). For institutions that have been offering online and hybrid courses for many years, MOOCs represent more of an incremental step along a pre-existing trajectory than a major innovation.

MOOCs have to address fundamental questions, such as the following, about their teaching model to secure their future (Gaebel, 2014: 23):

- Can MOOCs solve the problems and dysfunctions in mass education resulting from an unfavourable instructor-to-student ratio?
- Can MOOCs even reverse the pattern of one (instructor) to many students toward "many to one" or "many to many"?

Without an adequate answer to these teaching challenges, MOOCs will probably not have a significant future.

The business model from "freemium" to "premium"

The financial framework of MOOCs is another major issue. Various approaches all have business models that are still under development. These models depend on how institutions are funded. For example, European universities are largely publicly funded and the question is whether they have the right to produce MOOCs and if the opportunity cost can be justified in the current funding squeeze (Gaebel, 2014). The costs of developing MOOCs can be high and the process demands commitment of personnel time and effort. Course design and delivery has shifted from a solo endeavour to team efforts including administrators in offices of digital technology, instructional designers, instructional technologists, videographers, and project managers (Hollands & Tirthali, 2014). In the United States, Coursera offers universities 6 to 15 per cent of the gross revenue generated by each of their MOOCs on its platform, as well as 20 per cent of the profits generated by the "aggregate set of courses" provided by the university (Kolowich, 2013a).

Another unresolved issue, at least in European universities, is how to remunerate teachers, tutors and professors or how to integrate their participation in MOOCs into their workload. The largest ever survey of professors who have taught MOOCs, conducted by The Chronicle (2013), shows that many of those surveyed felt that these free online courses should be integrated into the traditional system of credit and degrees and two-thirds believed MOOCs would drive down the cost of earning a degree from their home institutions. An overwhelming majority believed that the free online courses would make college less expensive in general (Kolowich, 2013b).

To make MOOC courses financially viable, different monetization approaches have been implemented. Testing and certification of MOOC participants, who for individual courses remain low in number and disseminated widely around the globe, is also a growing domain for specialist companies, such as ProctorU and Pearson. An edX representative recently announced the "post-MOOC" era as its members start experimenting with SPOCs – small private online courses with fixed enrolments (Fox, 2013).

The question therefore is whether MOOCs can undercut the costs of other online learning models, while offering comparable or even superior learning quality. Coursera listed eight potential business models to try (Daniel, 2012).

- Certification (students pay for a badge or certificate).
- Secure assessments (students pay to have their examinations invigilated –proctored–).
- Employee recruitment (companies pay for access to student performance records).
- Applicant screening (employers/universities pay for access to records to screen applicants).
- Human tutoring or assignment marking (for which students pay).
- Selling the MOOC platform to enterprises to use in their own training courses.
- Sponsorships (third-party sponsors of courses).
- Tuition fees.

It seems that the business model is evolving from "freemium" to "premium" – much the same model that other social media start-ups have adopted. The model offers services and products that are initially free, and once a consumer base has been established, a fee is then charged for advanced or additional services and products. The premium model requires the MOOC start-ups to offer additional services for fees and these can include certification, licensing of course materials, and tuition for credit-based courses (Yuan, Powell, & Olivier, 2014).

Certification or/and accreditation

Certification is, after monetization, the most contentious issue with regard to MOOCs. Accreditation has two aspects for MOOCs. The first is that it opens the door to revenue from course fees. Second (and less discussed for the moment) is the issue of how learning is assessed, authenticated and valued by employers (BIS, 2013). There has been speculation whether higher education institutions will lose the monopoly on degree and credit validation, as other education providers start to issue badges and certificates, which are accepted by employers (Gaebel, 2014, Fain, 2014). In Europe, surprisingly, there has been no real discussion on whether MOOCs should earn credits, and whether they could be related to the instruments of the European Higher Education Area (ECTS, recognition of prior learning).

It is difficult to understand how MOOCs can change higher education if they do not award credits, whether in blended or in distance-learning mode – unless they involve new ways of validation which either complement or compete with existing credit systems (Gaebel, 2014). A report from credit rating agency Moody's on the income prospects of US higher education institutions points to MOOCs as an additional income source – provided they award credits (Moody's Investor Service, 2013).

In this context, the Massachusetts Institute of Technology (MIT) announced recently that it would offer certificates to students who passed a sequence of seven courses in computer science. EdX, the non-profit MOOC provider founded by MIT and Harvard University, calls such certificate programmes "XSeries", with the expectation that other institutions among its university partners will create certificate-bearing sequences of their own (Kolowich, 2014). Along these lines, the American Council on Education (ACE) endorsed five MOOCs for credit: "Bioelectricity: A Quantitative Approach," from Duke University; "Pre-Calculus" and "Algebra" from the University of California at Irvine, and "Calculus: Single-Variable" from the University of Pennsylvania. All five are offered through Coursera. The council

argued that it had confidence in its process for approving the courses for credit. Each course was reviewed by two independent faculty members, who looked at a number of aspects, including the tests and anti-cheating measures, which, in this case, involved a remote monitoring service with ProctorU (Kolowich, 2013a).

This is very much in line with the prediction that MOOCs will morph into MOCCs (Mid-Sized Online Closed Courses) that would either provide learning support, assessments and credit for a fee, or be delivered through licensed provision in the context of a university.

Other researchers, such as Yuan and Powell in the JISC-CETIS report (March 2013), think that certification is not a significant issue. They argue that "most learners using MOOCs are people who already have a degree". In this case, whether the course carries credit seems less important than having evidence through certification that they have participated in a programme of learning that they can present to an employer as evidence of professional development.

Validation is probably a more pressing consideration than assessment, for which proven and applicable models exist. The MOOC learner is remote, unverifiable, and identified merely by an email address. Technology based solutions such as Coursera's Signature Track automated remote keystroke recognition engine may, according to Universities UK (2013), offer solutions to verify that the learner completing an assessment is who they say they are.

An answer to this dilemma may lie in Europe. Under rules designed to promote student mobility between EU member states, students can transfer course credits, at the discretion of universities, in any of the 53 countries that have signed the Lisbon Recognition Convention, "regardless of whether the knowledge, skills and competences were acquired through formal, non-formal or informal learning paths". Hans Klöpper, the managing director of iversity, points out that it is easy for students to assess MOOCs' quality, since they are open for all to see. Once students start to complete them in large numbers and clamour for recognition, it will be hard for Europe's universities to resist accrediting the best of them, he believes (The Economist, 2014). It would be interesting, as well, for states and federal education policymakers to adjust regulations to create pathways for MOOCs to be accepted for credit in high schools or to satisfy government-mandated continuing education for professionals (Hollands & Tirthali, 2014).

Adaptive learning

A possible, but still undeveloped, solution that will probably be available in the near future is to implement adaptive learning techniques to make MOOC courses more personalized. Course designers, managers, tutors, participants and policymakers of educational institutions might benefit from harnessing all the data MOOCs collect, and use them for improving educational activities, courses delivered, the learning experience as a whole and the investments of entire educational offers. Software agents could be designed to collect data automatically from the e-learning environment according to pre-defined indicators contained in a framework using advanced Educational Data Mining and Learning Analytics techniques and tools (Daradoumis, Bassi, Xhafa, & Caballe, 2013; Nguyen, Piech, Huang, & Guibas, 2014). Agents analysing the learner's profile could customize a course as follows: adjusting course content according to the participants' pre-requisites or educational background; changing course content according to the participant's location or country of origin, for example language, units of measure, currency symbol, seasons, etc.; and showing relevant case studies or further readings according to the country or region of origin/interest (Daradoumis, Bassi, Xhafa, & Caballe, 2013; Buffardi & Edwards, 2014).

Linked to student performance monitoring via MOOC platforms is the increasing use of automated learning technologies. UUK (2013) provides an extremely useful summary of these emergent tools: analytics, sematic web technologies and virtual problem-based learning. Analytics enables better assessment of the quality of contributions and connections that a student may make during their time on a course, including outside of formal class structures. The semantic web technologies may enable programmes to identify resources of interest to students enrolled on a particular course in a more targeted and automated way, including, for example, location-specific learning opportunities. Virtual problem-based learning combines problem-based learning with techniques developed through computer games and other simulation programmes and can bring students and educators together from multiple locations.

In sum, there is not yet a substantial body of literature on the learning analytics of MOOCs (Clow, 2013). There is a need to develop sophisticated adaptive learning mechanisms that will require the establishment of MOOC working partnerships between educators, instructional designers, and programmers.

MOOCs for developing countries and in fragile contexts

MOOCs are not yet a hot issue for educational policymakers in most middle and low-income countries. To date, the MOOC movement has paid insufficient attention to the real needs in the developing world. There are many issues and challenges that MOOC providers and policymakers have to overcome in fragile contexts. In many developing countries, computer literacy is still underdeveloped; for example Sri Lanka has an adult literacy rate of 91% (UNICEF, 2013) but a digital literacy rate of only 20.3% (Department of Census and Statistics Sri Lanka, 2009) and in most developing countries there is simply inadequate technology infrastructure to support the systematic use of MOOCs in any substantial way. While MOOC providers produce high definition videos to satisfy developed countries' participants, due to poor connections these videos take a long time to download or fail to do so. These countries need more suitable engagement tools such as: lower resolution videos, offline "burst connectivity" tools, and offline reading and composition of replies (Liyanagunawardena, Williams, & Adams, 2013).

Even where the technology infrastructure is in place and affordable, to date most of the courses have been offered in English or Spanish. While this is now changing, it still represents a significant barrier to participation in MOOCs by the majority of learners. Most developing countries have local languages and people in these countries are rarely competent in an international language. This language challenge has been addressed by some companies, such as Coursera with its Global Translator Community (GTC) initiative, a programme designed to greatly expand the number of courses offering high-quality subtitle translations, but more efforts are needed in order to guarantee that language is not a barrier.

Furthermore, courses need a cultural adaptation to ensure the inclusion of all participants both in intellectual debates and in forums avoiding unacceptable cultural posts (Mak, Williams & Mackness, 2010). MOOCs offered in developing countries should adapt to the local setting and contextualize courses for the competencies and skills required in these countries. In this regard, some initiatives are emerging, such as the new pilot initiative in Tanzania with support from the World Bank, that seek to incorporate Coursera offerings as part of a broader initiative to help equip students with market-relevant IT skills. Employers in Tanzania complain that there is a mismatch of skills in the local labour market. There is a growing need for IT and ICT knowledge and skills necessary meet growing demand for technically skilled workers across Tanzanian corporations (Trucano, 2013ab).

Finally, there are fragile contexts (war, refugee camps, etc.) where MOOCs could play an important role. For example, Dr. Mahmud Angrini, a Syrian doctor, explained how the U.S.-based learning portal Coursera, initially founded by two Stanford professors, changed his life. "Nowadays, I always tell my friends in refugee life: 'It is never too late to start again,'" he continues. "Someday, the war will end, and we will come back to our homes and our former lives to contribute to the reconstruction process in our country. To do so, we need to learn new skills, and this could only be achieved through continuing education. We can take advantage of the high quality courses that Coursera offers at no cost." (Curley, 2014).

Another interesting experience is the one developed by Barbara Moser-Mercer involving two refugees living in Dadaab Refugee Camp, Kenya, taking a MOOC offered on the Coursera platform together with the author (Moser-Mercer, 2014). Moser-Mercer suggests that MOOCs in these contexts need to consider offering suitable engagement tools for poor Internet connectivity areas with responsible pedagogical models that let learners interact with each other on the ground. In short, the humanitarian dimension of conflict zones requires that design, development and delivery of education respect International Humanitarian Law (Moser-Mercer, 2014: 121).

Therefore, some questions will need to be answered to determine what obstacles prevent access to and use of MOOCs among disadvantaged populations and how MOOCs may be used to promote improved economic, health and social outcomes in order to use them as a tool for development.

Conclusions

More than any other phenomenon this century, MOOCs have made higher education institutions reflect on how they should position themselves in a changing world. With some 4,000 MOOCs now on offer worldwide, the original models of cMOOCs and xMOOCS have evolved in many different directions – so much so that the term "MOOC" has probably outlived its usefulness. What we see now is the gradual expansion and the steady increase of quality of online teaching and learning for regular courses and programmes leading to credit and degrees. When we look back in ten years' time we shall judge that MOOCs were an important milestone in the evolution of higher education into the world of the Internet, rather than being significant for their own sake.

Reference

Bates, T. (2012). *What's right and what's wrong about Coursera-style MOOCs?* Retrieved from http://www.tonybates.ca/2012/08/05/whats-right-and-whats-wrong-about-coursera-style-moocs/ accessed 2012-09-22

BIS (2013). The maturing of the MOOC: Literature review of massive open online courses and other forms of online distance learning. *BIS Research Paper, 130*. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/240193/13-1173-maturing-of-the-mooc.pdf

Buffardi, K., & Edwards, S.H. (2014). Introducing CodeWorkout: an adaptive and social learning environment. *Proceedings of the 45th ACM Technical Symposium on Computer Science Education*, *724*. Retrieved from http://dl.acm.org/citation.cfm?doid=2538862.2544317

Cann, A (2013). *After the gold rush: MOOCs are augmenting rather than replacing formal educational models*. Retrieved from http://blogs.lse.ac.uk/impactofsocialsciences/2013/01/16/after-the-gold-rush/

Clow, D. (2013). MOOCs and the funnel of participation. *Third Conference on Learning Analytics and Knowledge.* Retrieved from http://oro.open.ac.uk/36657/1/DougClow-LAK13-revisedsubmitted

Curley, N. (2014). *Online education platform Coursera blocks students in Syria and Iran. Wamda.* Retrieved from http://www.wamda.com/2014/01/coursera-blocks-syria-and-iran-moocs-online-courses

Daniel, J. (2012). Making sense of MOOCs: Musings in a maze of myth, paradox and possibility. *Journal of Interactive Media in Education*, *3*. Retrieved from http://www-jime.open.ac.uk/jime/article/viewArticle/2012-18/html

Daradoumis, T., Bassi, R., Xhafa, F., & Caballe, S. (2013). A review on massive e-learning (MOOC) design, delivery and assessment. Eighth International Conference on P2P, Parallel, Grid, Cloud and Internet Computing. *IEEE Computer Society*, 208-213.

Department of Census and Statistics Sri Lanka, (2009). *Computer Literacy Survey - 2009*. Retrieved from http://www.statistics.gov.lk/CLS/BuletinComputerLiteracy_2009. pdf

Dillenbourg, P., Fox, A., Kirchner, C., Mitchell, J., & Wirsing, M. (Eds). (2014). Massive open online courses: current state and perspectives. *Dagstuhl Manifestos*. Schloss Dagstuhl-Leibniz-Zentrum für Informatik. Retrieved from http://www.dagstuhl.de/en/program/calendar/semhp/?semnr=14112

Fain, P. (2014). Ideas take shape for new accreditors aimed at emerging online providers. *Inside Higher Ed*. Retrieved from http://www.insidehighered.com/news/2014/05/09/ideas-take-shape-new-accreditors-aimed-emerging-online-providers#sthash.TrrbNDAP.dpbs

Fox, A. (2013). From MOOCs to SPOCs. *Communications of the ACM*, *56*(12), 38-40. Retrieved from http://cacm.acm.org/magazines/2013/12/169931-from-moocs-to-spocs/fulltext

Gaebel, M. (2014). MOOCS Massive Open Online Courses. *European University Association*, 1-35. Retrieved from https://oerknowledgecloud.org/content/moocs-massive-open-online-courses

Hollands, F., & Tirthali, D. (2014). *MOOCs: expectations and reality. Full report*. New York: Columbia University, Center for Benefit-Cost Studies of Education, Teachers College. Retrieved from http://cbcse.org/wordpress/wp-content/uploads/2014/05/MOOCs_Expectations_and_Reality.pdf

Kolowich, S. (2013a). American Council on Education recommends 5 MOOCs for credit. *The Chronicle of Higher Education*. Retrieved from https://chronicle.com/article/American-Council-on-Education/137155/

Kolowich, S (2013b). *The Professors Who Make the MOOCs*. Retrieved from http://chronicle.com/article/The-Professors-Behind-the-MOOC/137905/#id=overview. Accessed 24/06/2013

Kolowich, S. (2014). Coursera will offer certificates for sequences of MOOCs. *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/blogs/wiredcampus/coursera-will-offer-certificates-for-sequences-of-moocs/49581

Liyanagunawardena, T., Williams, S, & Adams, A. (2013). The Impact and Reach of MOOCs: A Developing Countries' Perspective. *eLearning Papers, 33*. Retrieved from http://www.openeducationeuropa.eu/es/article/Impacto-y-alcance-de-los-MOOC%3A-Perspectiva-de-los-pa%C3%ADses-en-desarrollo?paper=124337

Mak, S., Williams, R., & Mackness, J. (2010). Blogs and Forums as Communication and Learning Tools in a MOOC. *International Conference on Networked Learning 2010*. Lancaster: University of Lancaster.

Moody's Investor Service. (2013). *US Higher Education Outlook Negative in 2013*. Retrieved from https://www.moodys.com/research/Moodys-2013-outlook-for-entire-US-Higher-Education-sector-changed--PR_263866

Moser-Mercer, B. (2014). MOOCs in fragile contexts. *European MOOCs Stakeholders Summit*. Retrieved from http://inzone.fti.unige.ch/Media-Upload_Xvc78HxeZ34xv/Kcfinder/files/MOOCs%20in%20Fragile%20Contexts.pdf

Newman, J. (1858). *The Idea of a University: Defined and Illustrated*. (Ed. by Ian T. Ker, 1976). Oxford: Oxford University Press.

Nguyen, A., Piech, C., Huang, J., & Guibas, L. (2014). Codewebs: scalable homework search for massive open online programming courses. *Proceedings of the 23rd International World Wide Web Conference, Seoul, Korea*. Retrieved from http://www.stanford.edu/~jhuang11/research/pubs/www14/nphg-www14.pdf

The Economist (2014). *The future of universities. The digital degree*. Retrieved from http://www.economist.com/news/briefing/21605899-staid-higher-education-business-about-experience-welcome-earthquake-digital

Parr, C. (2013). Not Staying the Course. *Times Higher Education*. Retrieved from https://www.insidehighered.com/news/2013/05/10/new-study-low-mooc-completion-rates

Trucano, M. (2013a). *MOOCs in Africa*. Retrieved from http://blogs.worldbank.org/edutech/moocs-in-africa

Trucano, M. (2013b). *More about MOOCs and developing countries*. Retrieved from http://blogs.worldbank.org/edutech/moocs-in-africa

UNESCO (2013). *Introduction to MOOCs: Avalanche, Illusion or Augmentation?* Retrieved from http://iite.unesco.org/pics/publications/en/files/3214722.pdf

UNICEF (2013). *Sri Lanka Statistics*. Retrieved March 20, 2013 from http://www.unicef.org/infobycountry/sri_lanka_statistics.html

Universities UK (2013). *Massive Open Online Courses: Higher education's digital moment?* Retrieved from http://www.universitiesuk.ac.uk/highereducation/Pages/MOOCsHigherEducationDigitalMoment.aspx

Yuan, L., & Powell, S. (2013). *MOOCs and Open Education: Implications for Higher Education*. Retrieved from http://publications.cetis.ac.uk/2013/667

Yuan, L., Powell, S., & Olivier, B. (2014). *Beyond MOOCs: Sustainable Online Learning in Institutions*. Cetis. White paper. Retrieved from http://publications.cetis.ac.uk/2014/898

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