

Model for democratisation of the contents hosted in MOOCs

Javiera Atenas

University College London (UCL), United Kingdom | j.atenas@ucl.ac.uk

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Abstract

Massive Online Open Courses (MOOCs) have emerged as a new educational tool in higher education, based on gratuity, massiveness and ubiquity. Essentially they suggest an evolution of the Open Learning Movement based on principles of reusing, revising, remixing and redistributing open educational resources (OER). However, in contrast with the content of OERs, content hosted in MOOCs tends to be paywalled and copyrighted, which restricts its reuse. Philosophically, the main problem with MOOCs is the inaccessibility and inadaptability of their resources, challenging democratic open access to knowledge. A number of authors and organisations consider it an ultimate necessity to open up MOOC resources. Therefore in this paper three strategies to open up MOOC contents are proposed: to deposit the materials in repositories of OER (ROER) as individual objects, to archive them in ROER in data packages as learning units or to convert them into OpenCourseWare (OCW) as self-taught courses.

Keywords

MOOCs, OER, democratic knowledge

Modelo de democratización de los contenidos albergados en los MOOC

Resumen

Los cursos online masivos y abiertos (MOOC por Massive Online Open Courses) son la materialización de un nuevo escenario formativo en la educación superior fundamentado en la gratuidad, la masividad y la ubicuidad. En su esencia suponen una evolución del movimiento de aprendizaje abierto (Open Learning Movement), cuyos principios son la reutilización, revisión, remezcla y redistribución de los recursos educativos abiertos (REA). Pero a diferencia de estos, en los MOOC los contenidos están cerrados y protegidos bajo copyright, por lo que sus materiales no pueden ser reutilizados. Criticados desde diferentes puntos de vista, desde la perspectiva de la filosofía REA, el principal problema que presentan es que sus recursos no sean accesibles, modificables y traducibles, lo que impide la democratización y el acceso libre del conocimiento. Por ello diferentes autores e instancias consideran necesaria la apertura de los contenidos de los MOOC y en este artículo se proponen tres estrategias para abrir los contenidos: depositar los materiales en repositorios de REA, archivarlos como objetos individuales en repositorios de REA como paquetes de datos y su conversión a Open CourseWare, como cursos de autoaprendizaje.

Palabras clave

MOOC, REA, democratización del conocimiento

Introduction. Definition and characteristics of MOOCs

One of the new teaching elements in higher education is increasingly focused on a format that meets three basic requirements: openness, massiveness and ubiquitousness (Berman, 2012; Boxall, 2012; Siemens & Cormier, 2010). These principles are emerging particularly in courses called Massive Open Online Courses (MOOCs). As a phenomenon, MOOCs have had a huge impact in the media, particularly when some of the most prestigious universities in the United States began offering courses freely delivered by distance learning systems with the aim of reaching a large audience of students thanks to their open, participatory and free registration model.

Whilst emphasising the objectives of the Open Learning Movement, the aim of this article is to present a general approach to MOOCs, and from this critical perspective to present action guidelines and a set of strategies to align MOOCs with open educational resources (OER).

Four of the largest MOOC providers were reviewed and analysed for this article, and particular attention was given to the analysis of the terms and conditions for the use of the content hosted in the courses, alongside the codes of conduct for participants and the languages in which the programmes are provided.

According to Liyanagunawardena, Adams & Williams (2013), MOOCs can be defined as online courses that aim to have a wide appeal to people who are interested in learning about a specific subject on a course guided by subject experts as learning facilitators. For McAuley et al. (2010) and Waard et al. (2011), these courses are by definition both open and online to allow the largest possible number of participants – with the option of free and open registration, an openly shared curriculum, and facilitated by professionals who are leaders in their subject fields.

These courses are normally between 4 and 10 weeks long and students must typically dedicate between 2 and 6 hours a week to study (Haggard, 2013). Therefore, MOOCs differ from traditional distance courses as registration is free and open, they do not insist upon prerequisites for participation, and students do not need to make a clear full- or part-time commitment.

The characteristics of MOOCs as formative courses are based on the following premises, although these are not applied consistently by every single MOOC (Gea, Montes & Roja, 2012):

- Be a course: i.e. have a learning oriented structure, with resources and evaluation strategies to accredit the acquired learning.
- Be massive: this implies accepting an unlimited number of registrations, or a much larger number of participants than in a traditional face-to-face course, with a global reach, and not necessarily an academic audience.
- Be online: the content of the courses is designed to be delivered by, or on, the Internet as the core communication medium.
- Be open: to facilitate free access to the resources.

According to Downes (2013) it is possible to identify two types of MOOCs.

- cMOOCs: Based on a connectivist approach, Cormier, Siemens and Downes first started these MOOCs in 2008.
- xMOOCs: Developed by universities in the United States, these courses are based on traditional models of learning and use recorded lectures and, self-assessment quizzes and require completion of small tasks. Their

fundamental characteristics are a) *cost-free access*, without limitation on the numbers of participants; b) *lack of official certification for the participants*; c) *instructional design centered on the use of audio-visual materials supported with texts* and d) a *collaborative and participative methodology* for students, with little intervention from the teachers and facilitators.

Another way of categorising MOOCs is related with three main foci of the open education movement, based on networks, tasks and content (Traxler, 2009; Inoue, 2010). According to this model there are three categories of MOOC (Vázquez, 2013).

- **Network-based MOOCs:** In these courses, learning originates around discussion and knowledge is constructed socially. These MOOCs are based on connectivist theories (Siemens, 2005; Ravenscroft, 2011; Downes, 2012), which can be defined as an epistemological approach that provides ideas about certain learning phenomena among connected students, but which lacks the nature and structure of a theory (Zapata, 2013). Their fundamental principles are autonomy, diversity, openness and interactivity (Rodríguez, 2012). In these courses, content is minimal and its fundamental acting principle is networked learning in a context in which, in terms of the students' autonomy, information is searched in order to generate knowledge that is shared with all the course participants (Sevillano & Quicios, 2012).
- **Task-based MOOCs:** In these courses, learning is distributed in different formats but is required to complete a certain number of compulsory tasks in order to progress in the course. This type of MOOC is developed from a blend of instruction and constructivism (Laurillard, 2007; Bell, 2011), where communities are relevant only to share examples and to ask for support.
- **Content-based MOOCs:** In these courses, content is the most important element, while socialisation and the completion of tasks are not relevant to the acquisition of knowledge. These courses use automated tests and have been widely showcased in the media (Rodríguez, 2012). They are based on evaluation models that are similar to the traditional assessment methods (with standardised and self-evaluation tests) and instructivism.

Platforms that host MOOCs are proliferating from different private companies and universities. All these platforms offer many different courses on diverse topics and their characteristics are similar to those of Learning Management Systems (LMS) or Virtual Learning Environments (VLE). Some providers of learning content such as Pearson, and VLE providers such as Blackboard, have risen rapidly in the MOOC marketplace alongside providers such as Iversity, Udemy and P2PU. On a global scale, the largest MOOC providers are Coursera, Udacity, Future Learn and EdX with a large number of users and courses as can be seen in Table 1.

Table 1. Main MOOC providers

Platform	Country	Users	Initial investment	Associated universities	Courses
Coursera	United States	5,400,000	US\$ 16 million	80	542
Udacity	United States	400,000	US\$ 5 million	6	28
EdX	United States	890,000	US\$ 30 million	29	91
Future Learn	United Kingdom	Information not available	Information not available	27	29

In this new learning macro-scenario based on the philosophy of the Open Education Movement (Cafolla, 2006; OECD, 2007; Bates & Sangrà, 2011; Dezuanni & Monroy, 2012), it could be said that MOOCs are an evolution of the educational ideals that this movement promotes, the main element of which is known as Open Educational Resources (OER). But in contrast with OER, MOOC openness is often related with openness to enrolment, and does not point to openness of the contents and the resources. Access to the resources is restricted to registered participants only. MOOCs may represent a great opportunity to develop new pedagogical models, as this type of course can lead to the creation and use of OER by offering high quality content and resources (Daniel, 2012; Wheeler & Sangrà, 2013).

Questioning MOOCs

When talking about the quality of MOOC content, one of the main problems they have is the validity of the pedagogical design, as well as the course interactions, the role of the teachers, students and assessment (Aguaded, Sevillano & Vázquez, 2013). MOOCs, as they stand, are insufficient by themselves because they lack key pedagogical components.

Vázquez (2013) has highlighted the lack of sustained evaluation methods, of verifiable/certifiable learning, of interaction with the facilitators, of planned collaborative and interactive work, and of effective development of transferrable skills. MOOCs lack valid and planned instructional design because the promoters are more focused on hiring programmers to develop the platform than experts in technology-enhanced teaching and learning. This can be linked to the high rate of participatory drop-out observed in these courses: participants are affected by a lack of elements that facilitate and motivate their learning, as this seems to be fragmented, diffuse and diverse due to missing official certification (McAuley et al., 2010).

Some of the current research emphasises that the problem with MOOCs is their real reach, as those participants who already have a degree and are digitally literate are those who benefit the most from these massive courses, contrary to those who do not have an academic education and lack digital skills or previous distance learning experience (Daniel, 2012; Downes, 2012). Likewise, Milligan, Littlejohn & Margaryan (2013) consider that course organisers should design content that can be used transversally and adapted to the different participants' profiles, aiming to provide, regardless of their skills, a positive learning experience.

Hill (2012) considers that, after their initial success, both MOOCs and OER projects need to overcome some urgent issues in relation to the "access models, credentials or accreditation, fees and user authentication" before they can evolve. To these problems, other issues are added, such as those derived from the participants' authentication and the learning certification. Most of these courses provide certification, but it is neither free nor supported by valid assessment methods.

In this sense, and according to Zapata (2013), it seems that these initiatives are more business-oriented than pedagogically focused. They are promoted by universities, which seem to have had a decrease in the numbers of formally enrolled students in recent years, both as an effect of the decreasing numbers of young population and because of the global economic crisis.

Quality design of MOOCs requires using different strategies than those for traditional courses, and this means different costs and considerable investment, which makes people question their sustainability without strategies other than business models. Commercial and non-commercial organisations must converge in providing a high

quality and sustainable offer that promotes authentic learning experiences (Kim, 2012), as has been happening in the case of OERs, which allow democratic access to the resources produced in universities by hosting them in repositories of OER.

MOOCs from the Open Education Movement perspective

The Paris OER declaration (2012) recommends OER promotion to widen access to education at formal and informal levels, with the aim of contributing to social inclusion. To achieve this aim, it is necessary to promote the reuse and adaptation of these resources and to encourage OER production in local languages and in different contexts, facilitating the retrieval of these resources by implementing interoperable user-friendly tools to facilitate the use of the materials produced thanks to taxpayers' funds (UNESCO, 2012).

The OER concept was first introduced by UNESCO, which defined them as "teaching, learning and research materials in any medium, digital or otherwise, that reside in the public domain or have been released under an open licence that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions" (UNESCO, 2006). A year later, the OECD redefined them as "digitised materials offered freely and openly for educators, students, and self-learners to use and reuse for teaching, learning, and research" (OECD, 2007, p.11).

More recently, UNESCO (2011) has redefined them more broadly as "any type of educational materials that are in the public domain or introduced with an open licence. The nature of these open materials means that anyone can legally and freely copy, use, adapt and re-share them. OERs range from textbooks to curricula, syllabi, lecture notes, assignments, tests, projects, audio, video and animation" (p.5).

To differentiate OER from other online teaching resources, as reusable learning objects (RLO), Willey (2007) describes them as elements that must comply with four Rs to facilitate access and use:

1. Reuse – Use the work verbatim, just exactly as you found it.
2. Rework – Alter or transform the work so that it better meets your needs.
3. Remix – Combine the (verbatim or altered) work with other works to better meet your needs.
4. Redistribute – Share the verbatim work, the reworked work, or the remixed work with others.

From this series of principles, it can be understood that OER must be designed to be reused, adapted and translated according to the language and cultural needs of the communities of users that will be using them, with the aim to facilitate their understanding of the resources (Hylén, 2006; Wiley, 2007; Gourley & Lane, 2009; Kanwar & Uvalic-Trumbic, 2011). However, in MOOCs, content and resources tend to be closed and protected under copyright regulations which do not allow adaptation or translation; therefore, the content cannot be reused.

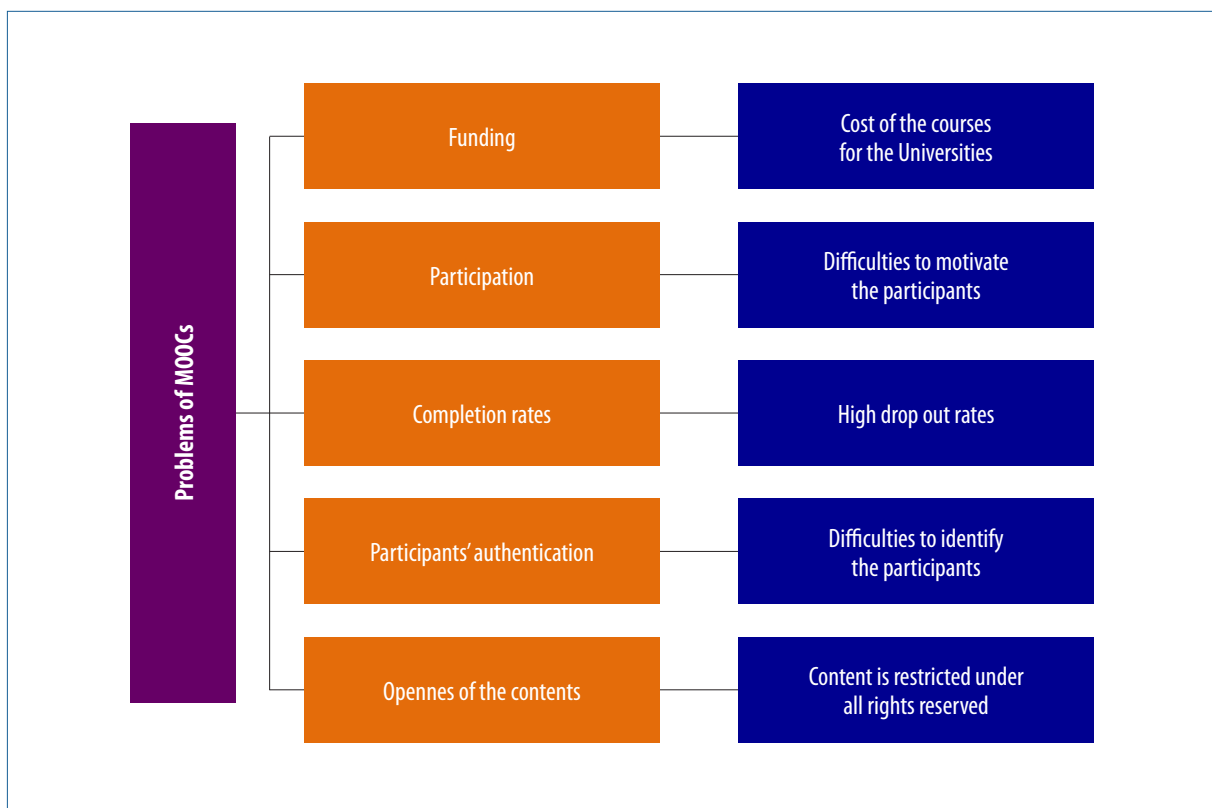
The largest MOOC providers have, in their terms and conditions, strict and restrictive clauses in relation to the use of the course materials. Coursera prohibits its participants from reproducing, duplicating, copying, selling, reselling or explaining the content of the sites, which includes code, images, text, design styles, illustrations, audio and video, HTML and any other content, thus allowing only the downloading of the content for personal use without commercial exploitation.

Udacity has similar regulations to Coursera's, and does not allow users to reuse the content but specifically allows personal use. EdX clearly states that the content is protected under US federal laws of intellectual property.

Future Learn establishes that the web and course content cannot be copied, reproduced, distributed, transmitted, exhibited, sold or exploited, but paradoxically, declares that openness of teaching material to be used and reused is a moral good and supports its staff and partners to contribute to repositories of OER.

From the point of view of the Open Education Movement, this is the key problem of MOOCs. Some of the higher education institutions that develop and offer MOOCs consider that selling the course content might help them to recover the investment on course production cost. Therefore, resources are released under copyright restrictions. This means that high quality content cannot be used or reused by academics, at the same institution or at a different one, which is one of the main barriers for MOOCs (Marshall, 2013). The main problems of MOOCs are summarised in Figure 1.

Figure 1. Main problems of MOOCs



Some institutions, such as publishers and museums, reject the educational expression in relation with MOOCs, arguing that their model is purely commercially based and oriented to obtaining a profit (Barnes, 2013). Thus, Siemens (2013) considers that in future, MOOCs must focus on opening access to contents for the democratisation of learning, and therefore it is necessary to generate consciousness in the developers and hosting institutions to make these courses open and licensed under Creative Commons (Butler et al. 2013). Likewise, Waard et al. (2011) consider that participants should have the freedom to use and disseminate what they have learnt during the course.

The process of opening up the content hosted in MOOCs can add value (in a non-commercial sense) to the efforts of the academics that have committed to developing these courses. The potential massive use of these resources by other academics could promote both the content authors and their institutions to a broad community

of users, and academics could also use specific elements or entire MOOC courses in their own teaching. This option could lead to real engagement, a commitment to transparency and the promotion of democratic access to higher education institutions for everyone.

Conclusions: Strategies to open up MOOCs

Opening up content hosted in MOOCs is important. According to Conole (2012), a good practice to promote open content is social and participative communication to share resources, which can be achieved through MOOC participants' networks.

One of the fundamental reasons why it is important to open up these contents is related to language barriers that impede global democratisation of content and the opening up of knowledge. Most of the courses are offered exclusively in English (both content and teaching), which obstructs access for those who do not have an advanced level of this language.

In the case of Future Learn, they establish in their code of conduct that the official language of the courses is English; therefore discussions must be carried out in this language only. Udacity provides subtitles for some resources in Spanish, Chinese, French, Portuguese, Croatian and Latin. EdX offers most of the courses in English only, however some are subtitled in Mandarin. Coursera is the only provider that offers courses in multiple languages and, therefore, is the platform with the most multilingual users.

To enable a model of democratic access to MOOC resources, they must be accessible, modifiable, adaptable and translatable, but it is also important that universities in developing countries can partner with the top-class universities that are developing and facilitating MOOC courses in order to enable, adapt and deliver the courses in other languages. As Aguaded (2013) suggests, the MOOC movement needs to be aware of the value of cultural and linguistic diversity, and move away from the imperialist model of standardised training that converges on business processes aiming to obtain excessive and unlimited profit.

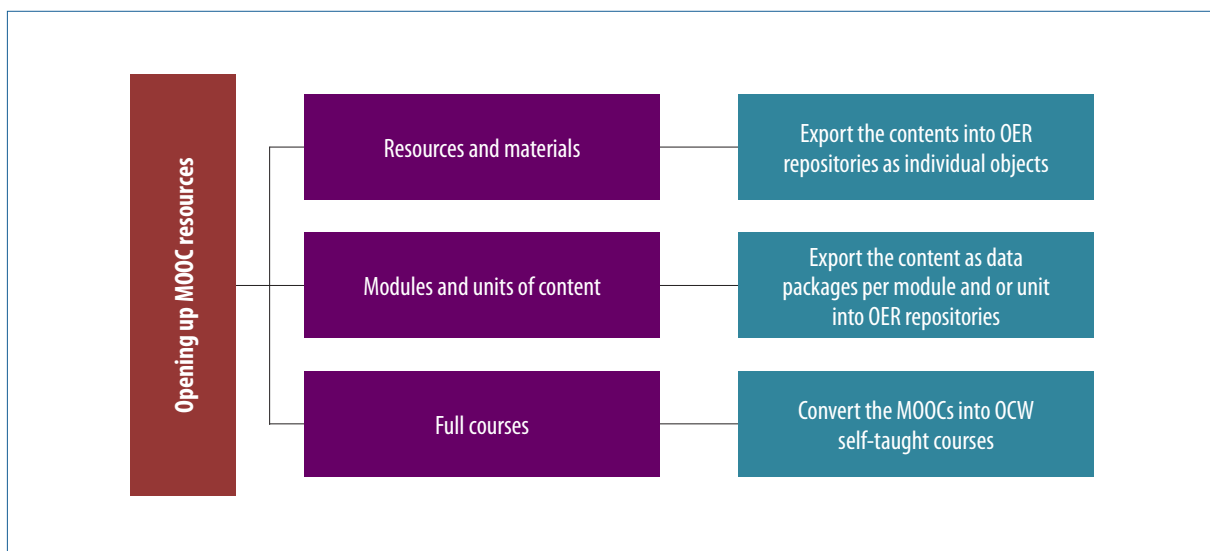
They should also consider opening up these courses not only for participants, but also to facilitate future professional use of the resources by any user, as long as they do not use them for commercial profit. The fairest way to allow and encourage the use of resources from MOOCs is by removing copyright barriers, adding Creative Commons licences to course materials and by using the General Public License (GNU) in the case of open codes used for modelling the contents or courses. These licences ensure the rights of the authors of content and, at the same time, let other academics use, adapt or translate them. Creative Commons licences can also explicitly prevent profitable use of the resources developed with public funds by commercial companies and organisations.

At an operational level, it is possible to describe three ways to open up the content hosted in MOOCs once teaching is over.

- Opening the contents as OER: Each individual object can be added to OER repositories, so the materials in the courses, such as photographs, videos, exercises and assessments can be deposited in these repositories under Creative Commons licences. In this case, the intellectual property attribution must be syndicated both for the individual authors of the resources and the university where the MOOC originated, allowing the reuse of resources individually by not only those who have participated in the course, but also by academics who are interested in the subject.

- Opening the contents as packages and units of data. This means that content, i.e. text, images, videos, exercises and assessments for each week or unit can become downloadable as data packages and stored in OER repositories under Creative Commons licences. Those interested in accessing the materials can download the resources contextualised as packages of learning units with a structure, a schedule and a final evaluation. In this case, as above, each packet should be attributed to the authors of the unit and/or individual materials and to the university that hosted the course.
- Transforming the MOOCs into OpenCourseWare courses. Once the courses are finished, MOOCs can be converted into OCW courses as unguided open courses with Creative Commons licences, allowing anyone to access them, and download materials and evaluation exercises. These courses do not require registration to access them and materials can be reused by the users. One advantage of this model is that data use and content downloads can be analysed and there is no need to transfer the resources into OER repositories, so the efforts by the team of authors would be minimal and they would only need to remove the personal data of the registered participants from the course.

Figure 2. Strategies to open up contents hosted in MOOCs



Gratuity and massiveness are the two concepts that differentiate this type of course from the traditional approach of distance learning (e-learning). For this movement to progress, there has to be a real commitment from governments as funding agencies and from universities as providers of content and teaching to truly democratise access to information, education and knowledge.

As taxpayers are funding the development of these open and massive courses, access to the resources should be considered a right for all citizens who are interested in increasing their knowledge and improving their skills. To promote democratic access to these courses and to their resources, universities must use platforms that allow free access to and use of contents and avoid offering these courses on closed commercial platforms that impose restrictive clauses regarding the use of resources that have been funded by the taxpayers.

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About the author

Javiera Atenas

j.atenas@ucl.ac.uk

PhD candidate in Education (University of Barcelona) and teaching and learning technologist and researcher at University College London (UCL)

Atenas has an MA in Library and Information Sciences and works in the department of Science, Technology, Engineering and Public Policy (STePP) at University College London (UCL). Her research is focused on open access to information and data, policies on democratic access to knowledge and academic training in open educational practices in higher education.

Department of Science, Technology, Engineering and Public Policy (UCL STePP)
36-38 Fitzroy Square (2nd Floor)
London
W1T 6EY

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