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Towards Equitable Quality Education for All: Are MOOCs Really a Way Out?

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Abstract: *In recent years, the phenomenon of harnessing Massive Open Online Courses (MOOCs) has taken higher education circles by storm. The attraction of MOOCs as a new teaching paradigm is clear, and its potential is being increasingly explored. While MOOCs is often expected to be a way to move towards equitable quality education for all by its advocates, the reality appears to be a different story to many. Therefore, drawing on a systematic literature review of both academic and popular media sources, this position paper attempts to revisit the expectations and reality of MOOCs in order to examine the assertions made by MOOCs enthusiasts. It is believed that the study will not only contribute to the understanding of the current status of MOOCs beyond technological perspectives but also inform policy-makers to rethinking the concerns before embracing this new paradigm.*

Keywords: MOOCs, Equality, Quality Education, Higher Education

1. Introduction

The last few years have seen booming development of Massive Open Online Courses (MOOCs) (Daniel, 2012). MOOCs hold the promise of distributing high quality courses and making higher education accessible to a global audience. Such a promise seems to suggest that people from remote areas with faculty shortage, from working-class families or low-SES backgrounds who could not have tertiary education due to economic reasons, are now able to get access to universities' learning and teaching resources without conventional challenges. In the meantime, MOOCs also raise a range of unanswered questions regarding the accessibility of MOOCs and their potential impact on education (Maringe & Sing, 2014). For example, to what extent are MOOCs democratising education? Are MOOCs really reaching the groups that are marginalised in terms of gender, culture, language, geography, minority status or income? These questions are not merely discussed within education circles. For the optimistic public, they wonder, if MOOCs can truly be the "future" mode of learning, will all universities eventually go online? How would universities justify high tuition costs if anyone can study online? For sceptics, they worry about dissolving the exclusivity of elite institutions such as the *Ivy League* ones. Given the confidence and doubts, this position paper attempts to review the expectations and reality of MOOCs in order to examine if MOOCs are really the approach to move towards equitable quality education for all.

2. Background

Coined by David Cormier in 2008, the term "MOOCs" is an acronym for "Massive Open Online Courses" (Cormier & Siemens, 2010). The development of MOOCs is rooted in the ideals of equality in education, that knowledge should be shared freely, and the desire to learn should be met without demographic, economic, and geographical constraints. That being said, while traditional online learning courses conventionally involve tuition fees and are limited to a specific amount of students, MOOCs, by contrast, are completely free, open to all, and support a large number of participants.

Typically, participants enrolled in a MOOC programme learn through watching video lectures - often sliced into digestible 10 or 15-minute segments - and then interacting with the teacher and peer classmates in online forums,

e-portfolio and microblogging feeds. For assessment, some require participants to take online tests or quizzes with multiple choice answers that can be graded automatically, while others require them to complete peer-reviewed essays.

From a technological perspective, MOOCs may not be conceptually as "revolutionary" (Friedman, 2012) as they look like. MOOCs are the next logical step in two increasingly growing paradigms: e-learning for formal education, which has been growing since the start of the millennium (Butcher & Wilson-Strydom, 2013) and free online educational resources for informal learning, such as Khan Academy, TED, and iTunes U, which have been offering high-quality, education-oriented video content that have attracted large numbers of viewers (Yuan & Powell, 2013). Like e-learning and free online educational resource, a key advantage of MOOCs over traditional classroom-based learning and teaching is the flexibility. MOOCs offer a self-determined pace of education so that learners may study according to their own schedules (although some do have start and completion dates). This also gives learners the opportunity to re-watch parts of the programme that is more challenging for them.

MOOCs distinguish itself from previous paradigms by the number of participants (massiveness) and its openness (Skiba, 2012). On one hand, although there is no precise number to define its massiveness, MOOCs build on the active engagement of hundreds and thousands of participants who self-organise their participation according to learning goals, prior knowledge and skills, and common interests. This creates a very broad form of "legitimate peripheral participation" which allows individuals to be drawn into the Community of Practice (CoP) (Wenger, 1998) at whatever rate is comfortable for them. The openness, on the other hand, is especially exciting because it has the potential of offering opportunities of inclusive and equitable quality education to those who might otherwise be excluded for reasons ranging from time, to geographic location, to formal prerequisites, to financial hardship.

Because of these reasons, advocates see MOOCs as a disruptive innovation (Bower & Christensen, 1995) that will force re-thinking and re-structuring of existing higher education models (Skiba, 2012). MOOCs platforms such as Coursera[3], EdX[4] and Udacity[5] are backed by (or partnered with) top universities (Lewin, 2012; 2013), including many in Hong Kong (Sharma, 2013), offering courses in a wide range of subjects, the content of which is often similar to that of an undergraduate or graduate-level course.

3. Method

To learn the current status of MOOCs, a systematic literature review (SLR) method (Levy & Ellis, 2006) was employed in this study. SLR research steps (namely planning, selection, extraction, and execution) described by Okoli and Schabram (2010) were followed. The electronic databases searched in this review included those identified as relevant to education, information technology and social science. Relevant literatures were therefore identified by searching on the Google Scholar, Citeseer, ScienceDirect, ERIC, ProQuest, JSTOR, Scopus and SpringerLink electronic databases. The title, abstract and keywords were searched for the phrases ('MOOCs' OR 'Massive Open Online Courses'). The title and abstracts of the search results were assessed for relevance (For example, studies on Management of Organisational Changes, which was also abbreviated to MOOCs, were excluded.). As MOOCs are relatively new (started in 2008), papers included were therefore not only restricted to the peer-reviewed journal papers but also high-quality popular media articles in English language published between the years 2008 to Dec 2015 (up to the time when this review was being conducted). Studies that mentioned equality and quality promises and issues were identified for further evaluation. The evaluation process resulted in the identification of 49 distinct articles. Thematic analysis (Creswell, 1994) was then carried out to derive themes for discussion.

[3] https://www.coursera.org/
[4] https://www.edx.org/
[5] https://www.udacity.com/

4. Discussions

4.1. MOOCs for Equitable Education?

Although equitable education does not equal to the provision of schooling to all, equitability remains a serious issue with MOOCs.

The first and foremost equitability barrier identified was the readiness for MOOCs. In many developing countries, there is simply inadequate technology infrastructure to support the systematic use of MOOCs in any substantial way. Obviously, in areas where there is limited computer/Internet access, learning via MOOCs is going to be a challenge. Such a challenge is being addressed recently by the introduction of mobile technologies as a catalyst, since the infrastructural requirements of mobile technologies are relatively light compared to other ICT solutions, and the prices of devices and of connectivity are rapidly declining (Trucano, 2013).

It is worth mentioning that, the Digital Divide (Norris, 2001) in education between rich areas and the world's poor often goes beyond the issue of access to technology. A Second-level Digital Divide (Hargittai, 2002) would likely separate those with the competencies, skills and literacies to benefit from computer/Internet use from those without, because MOOCs generally require a high degree of autonomy and depend on participants being able to work with the technologies and formats used.

In addition, to date most of the courses have been offered in English only (Liyanagunawardena, Adams, & Williams, 2013). While this situation is changing by adding subtitles (of Chinese, Russian, Portuguese, Turkish, Japanese, Ukrainian, Kazakh, and Arabic, to name a few) with community efforts (Perez-Hernandez, 2014), it still represents a rather significant barrier to participation in MOOCs by learners from non-English-speaking countries.

A study by the University of Pennsylvania (Christensen et al., 2013) surveyed 34,779 students from across the globe who took 24 courses through Coursera and revealed that most of the individuals taking advantage of these online courses already have college degrees: 79% of the students possessed a bachelor's degree and 44 % had taken at least some graduate education courses. In addition, the study found the majority of the MOOCs students live in developed countries. These suggest that, MOOCs are currently deviating from the original goal. They are in some way reinforcing the advantages of the wealthy and the well-educated rather than reaching the people most in need of learning opportunities (Emanuel, 2013).

One explanation for the results could be that effective learning on MOOCs requires learners to be self-directed, to be able to balance day-to-day activities with learning in the course, and to be able to manage the volume of information. Such a mechanism may be a great challenge for the marginalised group of students, including those in developed countries. A large-scale study conducted in in Virginia and Washington State in the US (Jaggers, 2014) found populations with lower levels of traditional academic preparation such as community college students tended to perform more poorly on MOOCs because students often received less instructor guidance, support, and encouragement comparing to traditional face-to-face mode of teaching. For the advantaged students, this relative lack of human connection and individualised support may not be particularly problematic. However, for these traditionally lower-level students, instructors' caring, connection, encouragement, and guidance are critical in alleviating their anxiety, building their academic motivation, and supporting their success. Yet, MOOCs fail to cater for the needs of the most marginalised and to narrow achievement gaps.

Admittedly, a *Matthew Effect* (the phenomenon where "the rich get richer and the poor get poorer") exists when introducing MOOCs.

4.2. MOOCs for Quality Education?

The original MOOCs stemmed from a connectivist desire to de-centralise and de-institutionalise the traditional model of higher education, creating fundamentally open and open-ended networks of circulation and collaboration (Siemens, 2012). That is to say, Connectivism, the belief that learning is a network phenomenon, influenced (aided) by socialisation and technology (Siemens, 2005; Downes, 2008), is the pedagogical philosophy behind MOOCs (Rodriguez, 2012). However, many MOOC courses today (often being referred as xMOOCs, in contrast to the real connectivist cMOOCs) have been criticised for adopting a knowledge transmission model: in essence, they are considered to be the epitome of a technology-enriched '*sage on the stage*' mentality (Bates, 2012; Larry, 2012). Teaching, as many educators would argue, involves more than just transmitting facts. Rather, from a connectivist perspective, "to teach is to model and demonstrate, to learn is to practice and reflect" (Downes, 2007).

A real human connection beyond the streamed video lecture is often found missing in many MOOCs. Students' interactions with teachers and other students are then necessarily constrained and are probably less "authentic" or integrating than are in-person interactions (Clow, 2013). Perhaps adopting an online-offline hybrid model, known as Blended Learning, recently piloted by Harvard (Harvard, 2014), can solve this issue.

Additionally, although most MOOC courses offer an individualised experience in that they allow students to take alternative routes through material and offer automated feedback, they cannot be considered as adaptive learning (that is, providing a learning trajectory for each individual student that responds to ongoing assessment of how that student is performing) (Waters, 2014). Allowing students to take alternative routes in MOOCs does not seem to make much difference to the student's instruction because they are getting through the same material, meaning it is not a transformative experience. As students in MOOC courses are in various states of readiness and in many different learning styles, whether quality education can be delivered is questionable.

Because of the "massiveness", besides machine grading for multiple-choice questions, MOOCs often adopt peer review as the only viable formative assessment method, in order to speed up feedback loops. This means students are unlikely to acquire individualised advice or grading from the teacher. It has also been noted that some students are unhappy with the concept of peer review because of the accuracy concerns as well as the potential social and power relations conflicts between peer reviewers and reviewees (Balfour, 2013). The training for doing peer review properly is often lacking (Balfour, 2013). Also, since students are taking quizzes without proctors, cheating may become a big concern. Probably because of these combined reasons, until today, few universities offer full credentials (or confer a degree) to students completing a MOOC. This also raises the question of how future employers would evaluate the transcript of a student who has an undergraduate education's worth of MOOCs.

It has also been acknowledged that MOOCs have high withdraw/dropout rates. As an on-going initiative, Jordan's study (Jordan, 2015) provides a compilation of available data on MOOC completion. The study (as of June 2015) monitored 217 MOOC courses across 15 platforms and showed that the current average completion rate for MOOCs is approximately 15 percent (Jordan, 2015). Although it may be unfair to dismiss MOOCs on the basis of over-simplistic completion statistics (considering its massiveness), and MOOCs are offered free of educational prerequisites (Jordan, 2014), the dropout of MOOC learners might be still subject to learner's persistence (Breslow et al., 2013), which could be greatly discouraged by the experience from poorly designed content, inappropriate pedagogy and insufficient support from teachers.

5. Concluding Remarks

As MOOCs hold considerable promise of distributing high quality courses and making higher education accessible to a global audience, this position paper attempts to review the expectations and reality of MOOCs. While the uptake of

MOOCs has been strong, its current development from the existing literature shows the initiative has been deemed failures as an approach to truly move towards equitable quality education for all. Although criticisms found in this study may be premature as MOOCs are relatively new and are evolving quickly, the movement does show us an attempt to open new pathways to making equitable, high-quality education a reality for all learners, and we should continue marching on for a public good.

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