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A New Framework for Massive Open Online Courses (MOOCs)

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Abstract

The challenges that massive open online courses (MOOCs) bring to the learning arena spur adult educators to improve delivery. A framework for a new type of MOOC is presented to address some of the challenges presented by earlier models. This new MOOC, called a mesoMOOC, can bridge several challenges that hinder current effective delivery of MOOCs and utilize proven strategies in online learning to better implement MOOCs. The framework for the mesoMOOC calls for MOOC designers to address the orientation process, embed a connectivist synchronous component to the classroom, provide online formative and summative assessment, and develop subsections within classes.

Introduction

In spite of the development of massive open online courses (MOOCs) as a form of adult learning, adult educators as a whole have not been at the forefront of ensuring that effective pedagogical and andragogical principles have been embedded in the process. Thus, not all forward movement has been characterized as progress. Linda Morris (2013), the President of the American Association for Adult and Continuing Education (AAACE), acknowledges that MOOCs are gaining ground as a means of reaching adult learners. She encourages educators of adults to enter the discussion that is already taking place and challenges us to address the ineffective practices of MOOCs.

McAuley, Stewart, Siemens, and Cormier (2010) explain that a MOOC "integrates the connectivity of social networking, the facilitation of an acknowledged expert in a field of study, and a collection of freely accessible online resources" (p. 4). If one were to stop there, this definition might fit the current definition of a MOOC. However, McAuley et al. continue on to say that "perhaps most importantly, a MOOC builds on the active engagement of several hundred to several thousand 'students' who self-organize their participation according to learning goals, prior knowledge and skill, and common interests" (p. 4).

The research on MOOCs is minimal yet growing. The research shows a clear delineation in what a MOOC of 2008 and what a MOOC of 2013 represent.

In 2008, Siemens' theory of Connectivism became the basis for development of the "CCK08", which is now referred to as the first MOOC and was delivered through the University of Manitoba (Mackness, Mak, & Williams, 2010). This MOOC was designed with "the notion that large numbers of participants (thousands) might gain significant benefits from participating in a course" (O'Toole, 2013, p. 2).

cMOOCs

"Connectivist MOOCs (cMOOCs) follow connectivist principles, where large numbers of participants self-assemble collections of knowledge, learning activities and curriculum from openly available sources across publicly open platforms" (O'Toole, 2013, p. 1). The idea behind cMOOCs is that they focus on collaborative education through knowledge creation as opposed to duplication of knowledge already known (Siemens, 2012, para. 3). The assumption then is that with collaboration the greatest benefit occurs when more people put in more effort and thus work more intelligently (O'Toole, 2013, p. 1).

The Challenges of cMOOCs

Although cMOOCs embed and practice many effective techniques for reaching participants, there are a number of challenges that cMOOC design and implementation should address. Kop (2011) noted that:

> The motivational factors in a traditional adult education classroom are very important in learners…. If confidence levels are low, it is not likely that a person will take up connectivist learning. The technology itself or the activity the learner is taking on could form a barrier. (p. 22)

Another challenge of the cMOOC lies in the inability to effectively reach a massive audience. Stewart (2013) points out that with the cMOOC "the network effect of peer-oriented communications and connections and process-focused knowledge generation may thus be difficult to contain entirely, particularly at scale" (p. 8).

Although the first MOOC was a cMOOC in nature, "recent media attention has popularized the term MOOC to refer to xMOOCs" (Kay, Reimann, Diebold, & Kummerfeld, 2013, p. 2). The MOOC that we know today in practice is the xMOOC. "Extension MOOCs (xMOOCs) are where traditional institutions use online platforms to extend access to onsite learning activities, resources and events, which are typically based upon the transmission of content and verification of reception model"(O'Toole, 2013, p. 1). xMOOCs start from a very different perspective than cMOOcs. A student comes to the xMOOC expecting most construction of the learning experience to have been done by the course providers (O'Toole, 2013).

Providers like Coursera, EdX, and Udacity have brought the xMOOC to the masses through a sustainable platform delivery and accessibility (Mallon, 2013). These MOOCs are characterized as behaviorist education in practice. Aoki (2013) recognized that "pedagogical paradigms have shifted from behaviourist to cognitivist, and then back to constructivist throughout the history of e-learning, the pendulum has now been swinging back to the early days of behaviourism" (para. 1).

The Challenges of xMOOCs

According to Kalz and Specht (2013), xMOOCs "represent an instructional paradigm oriented on classical lectures with very little interaction opportunities"(p. 6). Rodriguez (2013) further states that "x-MOOCs are based on a tutor-centric model that establishes a one-to-many relationship to reach massive numbers" (p. 71). The capability of xMOOCs to reach the larger audiences that Rodriguez emphasizes allows greater ability for scale that remains a challenge for cMOOCs today.

Those MOOCs that are hyped in media up to now are "based on a very old and outdated behaviourist pedagogy, relying primarily on information transmission, computer marked assignments and peer assessment" (Bates, 2012, para. 7). Within this delivery model, there is a packaging of information as if the student were a consumer (Gur & Wiley, 2007, p. 1)

Aoki (2013) challenges developers of xMOOCs in this delivery model.

> Since the introduction of e-learning it has been touted that the technology should be used to personalize learning so that learners of diverse backgrounds, prior knowledge, learning styles, learning preferences, skills and competencies, work/life conditions, etc. can learn in the most effective way according to their needs (para. 1).

xMOOCs are not inherently known for their differentiation and instructional design to address different learning styles. This leaves a challenge for instructional designers to address within future development of MOOCs.

Coursera co-founder, Andrew "Ng's vision for MOOCs and higher education appears to center around assumptions that increasing numbers has no effect on learning except to increase the numbers of those engaged in the process" (Stewart, 2013, p. 5). However, replicating ineffective pedagogy is not in the best interest of learners. Although a good foundation from which to build, the MOOC in its current form should not be replicated by different providers across the world.

Addressing the Gaps

"Many of the current MOOC initiatives, both cMOOCs and xMOOCs, are instances of how not to be teaching online" (Naidu, 2013, p. 1). There has been a great deal of criticism of the current structure of MOOCS. The MOOC environment can be improved only if these criticisms serve to increase the effectiveness of this new phenomenon.

Kalz and Specht (2013) state that "from our perspectives the differentiation between the two archetypes xMOOCs and cMOOCs only represents two extreme positions without taking into account the real challenges of the learning design of such large-scale online courses" (para 7). Taking Morris' challenge to address the overarching principles of these two MOOCs and O'Toole's (2013) suggestion that a blending of the two might be the solution, the framework suggested below can address some of these ineffective practices by creating a mesoMOOC. The prefix meso refers to "the middle" (dictionary.com) between the cMOOC, xMOOC, and andragogy.

A mesoMOOC is then a MOOC that bridges the scalability that the xMOOC brings forth and incorporates the effective pedagogy from the connectivist tradition of the cMOOC while also suggesting effective practices from online learning and andragogy. Rodriguez (2012) identified that the average age of participants from various MOOCS in recent years was 30 and greater. Thus a significant number of MOOC participants are characterized as adult learners. MOOC designers should capitalize on the andragogical principles that adult learners want to learn what they need to know at the time as well as building on the experience and knowledge that they bring to the learning environment (Knowles, Holton, & Swanson, 2011).

Considerations for mesoMOOCs

Important considerations in designing, developing, and delivering an effective mesoMOOC include considering the orientation process, embedding a connectivist synchronous component to the class, providing online formative and summative assessment, and developing subsections within the class.

Address the Orientation Process

The first principle of the mesoMOOC will be to address the orientation process. According to research, students in online classes more successfully learn the

content when they participate in regulatory activities such as orientation, planning the course of action, evaluating the learning product, and monitoring all activities (Azevedo, Guthrie, & Seibert, 2004). Milligan, Margaryan, and Littlejohn (2013) wonder whether a learner has to learn how to learn in a MOOC (p. 157).

Establishing a framework of expectations allows a learner to more effectively participate and perhaps influence level of confidence. Milligan et al. (2013) note that confidence, prior experience, and motivation influenced engagement within a MOOC (p. 157). Adults have the potential to build upon their prior experience (Knowles, Holton, & Swanson, 2011, p. 64) thus providing an opportunity for growth in their confidence based on a differentiated learning environment provided within the MOOC. Kop (2011) also found that confidence was affected "if confidence levels are low, it is not likely that a person will take up connectivist learning. The technology itself, or the activity the learner is taking on could form a barrier" (p. 22).

Another area that should also be included in the orientation process of a MOOC is to address a potential digital literacy skills gap. "It goes without saying that the lack of familiarity with the digital skills privileged and rewarded within the MOOC will limit participation" (McAuley et al., 2010, p.51). Creating an environment whereby a learner upon entry into a MOOC can learn the platform and the process for successful engagement can have a positive impact on student confidence and experience.

> It becomes clear that if people are learning on these vast, disparate information networks, they need the ability to understand the intricacies of the networks in order to negotiate their structures. The need for high levels of critical capabilities… is important to be able to access the information and resources that are relevant and required. (Kop, 2011, p. 23).

A study by Darabi and Lin (2013) observed that the quality of the discussion online was significantly enhanced by posting examples and limiting the number of postings (p. 21). Laying out clear expectations for students in the MOOC environment can have a direct impact on the quality of the work.

Embed Connectivist Synchronous Component

Morris (2013) stated that "learning occurs where the interaction takes place." Through interpretation Morris referred to the interaction between the social and instructional presence within a teaching and learning environment. Kop, Fournier, and Mak (2011) uphold this assertion based on their research stating that "meaningful learning occurs if social and teaching presence forms the basis of design, facilitation, and direction of cognitive processes for the realization of personally meaningful and educationally worthwhile learning outcomes" (p. 88). The educators of adults entrance into the world of MOOCs can and should address what is already known about adult learning, which includes the aspects of reflection and discussion as significant forms of learning.

Clara and Barbera (2013) also suggest the need for "both didactically and technologically, opportunities for joint activity" (p. 133). Further, "with the rise of technology, complexity is growing too, there is one human factor that is now more than ever possible across borders, beliefs and time, that is, dialogue" (deWaard, 2012, p. 38). True to andragogical principles "that for many kinds of learning, the richest resources for learning resides in the adult learners themselves" (Knowles, Holton & Swanson, 2011, p. 64). Knowles et al. challenge us to provide the room for adults to synthesize and connect with others. The challenge for educators of adults should be to overcome the time and space challenges in connecting adults with each other

through platform and instructional design that support this type of learning.

Provide Online Assessment

Kay et al. (2013) challenge the MOOC community to "engage with the substantial challenges of online formative and summative assessment" (p. 7). The most important part of learning is achieved through teacher, peer and self-assessment; students want to know how they are doing, for their own benefit as well as for illustrating their worth to others (O'Toole, 2013).

Yet Bates (2012) holds that MOOCs are unable to handle assessment on a grander scale for those courses that require critical thinking and higher order thinking skills. In order to address assessment effectively, a new framework will need to be addressed so as to ensure that human resources can manage the work load. In order to implement assessment effectively within MOOCs, the final recommendation of developing subsections with classes will be pivotal. "The real crunch point in the scalability challenge is assessment and feedback" (O'Toole, 2013, p. 2).

Develop Subsections within Classes

Splitting learners into smaller groups and utilizing veteran MOOC participants to serve as peer leaders within the subsections can address some of the problems with scalability while allowing for group interaction. Mackness, Mak, and Williams (2010) found that:

> Autonomy, diversity, openness and connectedness interactivity are indeed characteristics of a MOOC, but that they present paradoxes which are difficult to resolve in an online course. The more autonomous, diverse and open the course, and the more the connected the learners, the more the potential for their learning to be limited by the lack of structure, support and moderation normally associated with an online course and the more they seek to engage in traditional groups as opposed to an open network. (p. 266)

Additionally, Aoki (2013) reflected that "many participants (teachers and students included) in MOOCs mentioned the need for some sort of supports to make the learning more effective to an individual" (para. 7). A veteran MOOC participant can guide and support a student through the process. Mackness, Waite, Roberts, and Lovegrove (2013) found in their study on MOOCs that support for learners from a number of MOOC veterans provided significant value by serving as role models and guides for less experienced MOOC learners. Thus, the one-way flow of information that characterizes traditional learning environments begins to be interrupted, and the teacher begins to be de-centered as the core arbiter of the learning experience" (Stewart, 2013, p. 10).

This new structure then allows the new framework to be implemented effectively utilizing both faculty and student leaders to assist in the assessment process. It also provides a means for smaller groups within the larger class to engage in the process of connectivity.

Conclusion

As promising as they are, MOOCs are only as strong as they are created to be. The mesoMOOC framework challenges current and future producers of MOOCs to embed principles which are known to be effective in reaching adult learners. Future research should focus on implementing the principles above within a mesoMOOC while evaluating their effectiveness for learning within this new MOOC environment.

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