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Rethinking A Framework for Contextualising and Collaborating in MOOCs by Higher Education Institutions in Africa

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Abstract: Massive Open Online Courses (MOOCs) are online courses that are open to anyone with Internet access. Pioneered in North America, they were developed for contexts with broader access to technology and wider access to the Internet. As globally networked learning environments (GNLEs), MOOCs foster collaborative communities and learning in ways not conceived as feasible until recently. The affordances of MOOCs, such as the ability to access learning beyond one's immediacy, exemplify their benefits for open and distance learning, especially in developing countries that continue to consume rather than produce online courses. However, the globality of MOOCs and their delivery mode pose a challenge of contextualising learning content to the local needs of educational institutions or individual students that choose to use the courses. This theoretical paper used a desk-research approach by revising literature to investigate and propose ways of contextualising MOOCs to the African higher education setting. It applied the principles of reuse and repurposing learning content, while suggesting the use of mobile learning as a technological delivery solution that is relevant to the local context. The paper also suggests a framework for inter-institutional collaboration for higher education institutions to guide future efforts in the creation and sharing of credit-bearing MOOCs.

Keywords: connectivism, contextualisation, higher education, MOOCs, Sub-Saharan Africa, online learning.

Introduction

Massive Open Online Courses (MOOCs) are "an evolving ecosystem of online learning environments featuring open enrolment, characterised by a spectrum of course designs ranging from networks of distributed online resources (cMOOCs) to structured learning pathways centralised on digital platforms (xMOOCs)" (Veletsianos & Shepherdson, 2016, p. 200). MOOCs are globally networked learning environments that represent an innovative way of delivering learning through online methods to a vast number of students (Marsaglia, Kemp, Jefferson, Bradley & Silberman, 2014). According to Educause (2013, p. 1), MOOCs are distinctly massive in that they have no enrolment limitations; are open by allowing anyone to participate for free; are online, with learning mediated through the Web; and are courses in that they have structure with a defined scope for study and predetermined learning goals.

Most MOOC providers are universities from the Global North, resulting in a limitation of the relevance of learning content to the local contexts of countries in the Global South, particularly in Sub-Saharan Africa. This status quo is also reflected in research publications as was found in the review of the literature by Bozkurt, Koseoglu and Singh on concepts such as open education, open learning, Open Educational Resources (OERs), and Open Educational Practices (OEPs), whereby most research

conducted in addressing these areas is disproportionally from the Global North, dominated by North America and Europe (Bozkurt, Koseoglu & Singh, 2019, p. 85). Veletsianos and Shepherdson (2016) similarly found that North America and Europe represented 82% of the research carried out on MOOCs up until 2015. Therefore, research on open education practices, such as MOOCs from the Global South, is necessary to help to address this disproportion.

MOOCs have a global reach irrespective of where they have been developed, as long as one has Web access. The modular delivery format of MOOCs also poses a challenge for educators in prescribing them to their students or integrating MOOCs into their curricula. At the same time, the reliance of MOOCs on networked and distributed learning frameworks is a source of tension with the traditional teaching and assessment methods at educational institutions.

With Africa continuing to make strides in increasing access to the Internet, there is potential for increased demand for MOOCs. This paper investigates the phenomenon of MOOCs from the standpoint of open and distance learning, and within the framework of Open Educational Resources from an African perspective. The purpose of the paper is to suggest solutions to the challenges experienced by higher education institutions in contextualisation of MOOCs to meet the local learning needs, exploring pedagogical implications of MOOCs, identifying inter-institutional collaboration frameworks on MOOCs for higher education institutions in Africa, and exploring methods of contextualising MOOCs for Africa's local learning contexts.

Methods

This paper uses desk research by reviewing the literature on MOOCs, building a theoretical framework for conceptualising MOOCs in the context of open and distance learning, and to address the set objectives. Literature for the study was exclusively obtained from online sources using the search terms "MOOCs", MOOC", Massive Open Online Courses" and "Open Online Courses". Various databases and search engines were used, namely Google Scholar, Ebscohost, ERIC, Scopus and the Google search engine. As this was a thematic review of the literature, the sample of the literature material included in the study was not based on a specific timeline or progression but rather on the basis of relevance to the topic. Literature material was not only limited to peer reviewed articles from online journals but it also included policy documents, ebooks and Web publications.

The study pursued the following key questions:

1. What are MOOCs?
2. How could MOOCs be modified or contextualised to suit African educational needs, both in terms of content and access?
3. How could African institutions of higher learning, whether in the same or different countries, collaborate on MOOC creation?

Conceptual Framework

The main theoretical concepts that frame this paper are open education, online education, connectivism and digital pedagogies. In this section, these concepts are defined and discussed within the context of MOOCs. The theoretical framework can be summed up in the diagram below (Fig. 1).

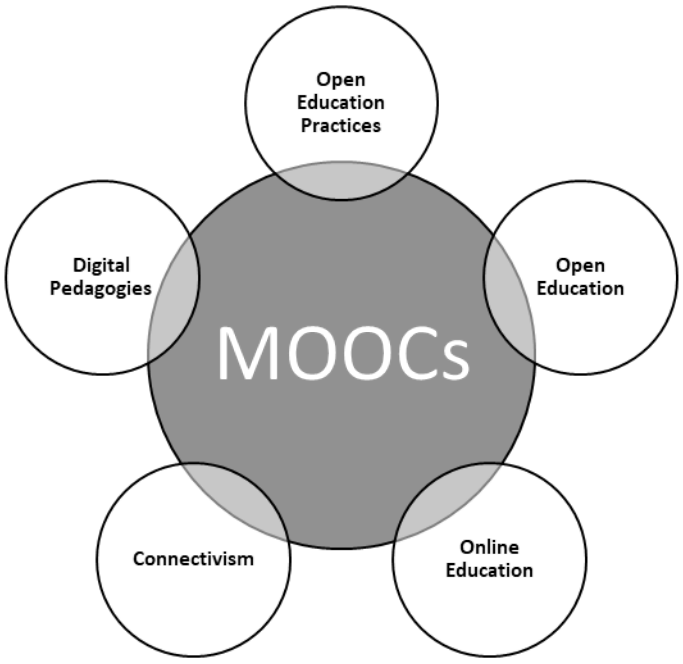

Figure 1: Relationship between MOOCs, open learning, learning theory and pedagogy

Source: authors' own design

The relationship between MOOCs to open educational practices, open learning, learning theory and pedagogy is discussed in more details next.

Open Educational Practices

Open educational practices are a complex term referring, but not limited to, "OER creation, use and adoption, open scholarship, open pedagogy, and learning" (Bozkurt, Koseoglu & Singh, 2019, p. 79). Koseoglu and Bozkurt (as cited in Zawacki-Richter et al, 2020, p. 325) define open educational practices as "a broad range of practices that are informed by open education initiatives and movements and that embody the values and visions of openness". Open educational practices can also be viewed as "collaborative practices that include the creation, use, and reuse of OER, as well as pedagogical practices employing participatory technologies and social networks for interaction, peer-learning, knowledge creation, and empowerment of learners" (Cronin as cited in Bozkurt, Koseoglu & Singh, 2019, p. 81). Based on this definition, it becomes apparent how MOOCs can be conceived as part of open educational practices as they involve the creation of Open Educational Resources delivered through open pedagogical practices enabled by online technologies that support learner interaction and co-creation of knowledge.

From a philosophical and policy perspective, it can be a challenge to envisage a situation where institutions of higher learning would embrace MOOCs if they do not accept or prescribe to open educational practices. Institutions that are not receptive to collaboration, sharing and use of participatory technologies may not only be resistant to using MOOCs but may also struggle to share

their own learning resources through similar practices. Open educational practices are therefore an important cog within the framework of MOOCs' usage.

Open Education

Open education is that which provides "access, flexibility, equity, collaboration, agency, democratization, social justice, transparency, and removing barriers" (Zawacki-Richter et al, 2020, p. 321). Open education is also seen as a "philosophy about the way people should produce, share, and build on knowledge", proponents of which promote the elimination of barriers such as cost, outdated materials and legal frameworks that hinder people to "access to high-quality educational experiences and resources" and "that prevent collaboration among scholars and educators" (Opensource.com, 2016).

Open education as a construct is closely related to open learning which refers to "the removal of both administrative and educational constraints to learning and where restrictions placed on students are under constant review and removed wherever possible" (Coffey as cited in Bozkurt, Koseoglu, & Singh, 2019, p. 79). According to Bozkurt, Koseoglu and Singh (2019), open education and open learning only differ in the sense that the former represents discipline and area of the study while the latter refers to a philosophical basis on which open institutions are found.

According to the Open Education Consortium, "open education encompasses resources, tools and practices that employ a framework of open sharing to improve educational access and effectiveness worldwide" (edX, 2016). It achieves this by taking advantage of emerging technologies to create and share educational resources "while harnessing today's collaborative spirit to develop educational approaches that are more responsive to learner's needs" (edX, 2016). The significance of the open education movement was illustrated through the Cape Town Open Education Declaration of 2007 that affirmed that "everyone should have the freedom to use, customize, improve and redistribute educational resources without constraint" (CTOED, 2008).

MOOCs are a phenomenon of open education whose aim is "to increase access to and successful participation in education by removing barriers and offering multiple ways of learning and sharing knowledge" (UNESCO & Commonwealth of Learning, 2016, p. 18). The nature of learning on MOOCs embodies the principles of open education such as open access, collaborative knowledge creation, continuous updating and sharing of information, freedom to use, remix and distribute learning resources, just to mention a few.

Online Education

Due to the diversity of educational practices and technologies used to support online education, various definitions exist in this regard. Online education in this paper is to be used interchangeably with online learning. The definition offered by Mohamed Ally (2008) is favoured in this paper for its comprehensiveness and wider application. He defines online education as the:

> … use of the Internet to access learning materials; to interact with the content, instructor, and other learners; and to obtain support during the learning process, in order to acquire knowledge, to construct personal meaning, and to grow from the learning experience (Ally, 2008, p. 17).

MOOCs by their very name as online courses fall within the field of online education. The pedagogy of MOOCs emphasises interaction and participation. Learners are expected to interact with learning content, usually in the form of videos, slides and reading materials, participate in discussions with fellow learners and course leaders, through which they are expected to construct new knowledge and meaning. In fact, interaction with fellow learners is much more expected and enhanced in MOOCs as opposed to ordinary, teacher-led online courses. According to Kuboni (as cited in Thiessen and Ambrock, 2008, p. 267):

> The online learning environment has several features: it encourages a reduction in the emphasis on the didactic role of the teacher, while emphasizing collaboration; it enables the development of process skills and knowledge building, rather than information and knowledge acquisition; and it supports collaborative group activities.

Therefore, there is a need to make an effort to distinguish between traditional contact teaching on the one hand where the teacher, educator or professor is the sage on the stage in charge of every aspect of the learning process, and the online learning environment on the other hand, where the educator's role transforms into that of a true, not symbolic, facilitator and collaborator. To embrace online learning environments requires us to shed our habitual control-focused pedagogies and embrace the culture and habits of online interactions that are horizontal and node-oriented, as will be discussed further below under Connectivism. This would also enable education to be best placed to promote the ever sought after 21st-century skills like problem solving, collaboration and innovation, skills that are stunted or discouraged by traditional teaching approaches.

Connectivism

The digital age has given birth to the current learning landscape that is seen as "networked, social and technological" (Dunaway as cited in Ungerer, 2016, p. 2) where learners "create and share information by collecting, filtering, and customizing digital content" (Mills as cited in Ungerer, 2016, p. 2). These are not only new skills that demand more from educators, they are also a landscape that cannot be adequately explained using traditional learning theories.

The inadequacy of traditional learning theories has led to George Siemens to introduce the theory of connectivism that conceptualises the ubiquitous access to information. According to Siemens (2004, p. 4), connectivist "learning is focused on connecting specialized information sets, and the connections that enable us to learn more are more important than our current state of knowing". From a connectivist perspective, learning takes place through an interaction between the individual and the network that is made up of nodes of other sources of knowledge, namely other individuals and organisations, enabling "learners to remain current in their field through the connections they have formed" (Siemens, 2004, p. 4). The principles of connectivism are as follows:

- Learning and knowledge rests in diversity of opinions.
- Learning is a process of connecting specialized nodes or information sources.
- Learning may reside in non-human appliances.
- Capacity to know more is more critical than what is currently known.

- Nurturing and maintaining connections is needed to facilitate continual learning.
- Ability to see connections between fields, ideas, and concepts is a core skill.
- Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities.
- Decision-making is in itself a learning process. (Siemens, 2004, p. 4).

Connectivism disrupts the existing models of different models for support learning by challenging the "notion that learning should be controlled by educators and educational institutions", instead "information and 'knowledgeable others' are readily available on online networks through the press of a button for anyone interested in expanding his or her horizon" (Kop, Fournier & Mak as cited in Yeager, Hurley-Dasgupta & Bliss, 2013, p. 135). Connectivism also redefines the role of the educator, shifting it from that of a knowledge provider to that of facilitator of learners' connections to knowledge networks which is a feature of Web 2.0 that promotes the idea of user generated content. According to Eggins and Slade (as cited in Anderson, 2008, p. 64) Web 2.0 "supports the reuse and adaptation of content through support for the construction, distribution, and retrieval of digitized content that is formatted and formally described, using semantic web technologies". This is a feature of both connectivism and MOOCs.

In MOOCs, particularly cMOOCs, connectivism is manifested in key activities that take place in the process of learning. According to Yeager, Hurley-Dasgupta and Bliss (2013), there are four of these activities, namely aggregation or curation, remixing, repurposing and feeding forward. Yeager, Hurley-Dasgupta and Bliss (2013) explain that aggregation involves the listing and sharing of resources with participants on the MOOC through updates; remixing refers to the initial connections made by the learners such as through blogging, liking, favouring or bookmarking; repurposing is when learners make sense of the connections by creating their own internal connections, while feeding forward involves learners sharing their connections with others on their networks.

Digital Pedagogies

Pedagogy that was appropriate for the time when access to knowledge was scarce is called "pedagogy of scarcity" (Weller, 2011). According to Weller (2011), the pedagogy of scarcity that is based on the "one to many" model was designed to take advantage of rare resources (learning content and experts). As such it adopts instructivist pedagogies such as lectures to convey scarce learning content. However, in the era of abundant access to learning content and knowledge experts through digital technologies, there is a need for a new pedagogy, the "pedagogy of abundance".

Weller (2011) states that the pedagogy of abundance is based on the assumptions that content is free, abundant, varied and user generated; sharing is free and social-based, facilitated by light connections that do not require a lot to maintain. This pedagogy demands a different focus for education and requires the teaching of digital and learning skills rather than knowledge recall. One such is skill is meta-cognitive processing that learners need in processing digital content, what is called curating. This involves "synthesizing, analyzing, and prioritizing information" (Ungerer, 2016, p. 6), using Web tools such as social media, the same sort of skills typically used when learning in MOOCs.

However, is this the reality regarding MOOCs? Using the Teaching Approach Framework that categorises teaching approaches based on the epistemological dimensions of objectivism and constructivism, a study by Toven-Lindsey, Rhoads and Lozano (2015) found that the majority of MOOCs used an objectivist and individual approach focusing on the "transmission of knowledge, instructional sequence and individual mastery" (p. 5). This approach was reinforced through the use of "recorded lectures, textbooks, multiple-choice and single answer assessments" (Toven-Lindsey, Rhoads & Lozano, 2015, p. 6). This finding does not surprise as it is simply a mirror reflection of the traditional face-to-face and online approaches. Given that MOOCs are developed by educators from the very institutions that tend to stick to traditions and familiar practices, this is to be expected. However, one must emphasise that there are MOOCs that are most likely to be objectivist and those that are less likely to be so, as the next section illustrates.

Discussion

Anatomy of MOOCs

MOOCs have been variably defined reflecting the varying theoretical positions the authors assume in their view of the MOOC phenomenon. Kesim and Altinpulluk (2015, p. 16) define MOOCs as "platforms that are open, free to enrol in, have open curriculums, and can integrate with social networks". A more comprehensive definition that is preferred by this paper is offered by Cormier and Gillis (as cited in Toven-Lindsey, Rhoads & Lozano, 2015) who define a MOOC as "an online course that engages students in the learning process, offers a way for students to connect and collaborate, and provides a platform where course materials are shared and negotiated among participants" (p. 2).

Another way to conceptualise the identity of MOOCs is through their key characteristics, namely that they are open, participatory and distributed. According to Baturay (2015, p. 428), open refers to the fact that participation on MOOCs is virtually open to anyone person with Internet access; participatory signifies the nature of learning in that it takes place through the creation and sharing as well as reciprocal interaction with others' contributions; while distributed describes the social and networked nature of the learning environment where learners interact with both learning content and with each other.

Types of MOOCs

The literature identifies three main categories of MOOCs, namely cMOOCs, task-based MOOCs and xMOOCs (Lane, 2012). cMOOCs (or network-based MOOCs) "are the original MOOCs" whose "goal is not so much content and skills acquisition, but conversation, socially constructed knowledge, and exposure to the milieu of learning on the open web using distributed means" using a connectivist pedagogy (Lane, 2012). The original cMOOCs aimed at widening access to higher education for increased participation. It was premised on the notion that knowledge is readily available on the Web and learning occurs "through the connections made among learners and learning objects" (Yeager, Hurley-Dasgupta & Bliss, 2013, p. 134).

The task-based MOOCs "emphasise skills in the sense that they ask the learner to complete certain types of work" (Lane, 2012). Learning is guided by a syllabus accompanied by prescribed materials, and the goal is task completion. Because task-based MOOCs tend to attract a smaller number of participants who usually share a profession, they are sometimes called SMOOCs – "Small-to-

Medium" instead of "Massive". Both networked and task-based MOOCs are a challenge for the application of traditional assessment methods, rather than relying on forms of peer and self-assessment such as discussions, comments and reflections.

The content-based or xMOOCs are the most popular type "with huge enrolments, commercial prospects, big university professors, automated testing" focusing on content acquisition rather than networking or task completion (Lane, 2012). The xMOOCs tend to be instructivist using mainly video lectures accompanied by formative and summative assessment. This type of MOOC is popular with universities as their pedagogy resonates with established behaviourist approaches that are traditionally used in universities. The instructivist pedagogy accompanied by automation is also necessitated by the need to meet the demands of massive enrolments of course participants.

The Benefits and Limitations of MOOCs

The benefits of MOOCs for educational institutions include enhancing institutional visibility and promoting student recruitment, enabling institutions to try out new innovations and offer cross-disciplinary courses, expanding access to higher education, and enabling educators to experiment with new pedagogies while creating communities of practice (Chea, 2016). Offering similar sentiments, UNESCO and the Commonwealth of Learning (2016) maintain that MOOCs widen participation in higher education by enabling "people anywhere in the world to acquire high-quality knowledge on demand" (p. 23). This supports the promotion of equality in and democratisation of education, supports the return of investment in tertiary education for societies and reduces educational cost (UNESCO & Commonwealth of Learning, 2016).

In terms of limitations, Chea (2016) suggests that there are two main ones, namely "non-completion rates … and the pressure on institutions to reduce costs" (p. 19) due to high cost of outsourcing the facilitation of courses resulting from the limitation in ICT expertise of local academic staff. UNESCO and the Commonwealth of Learning (2016) add that the advantages of MOOCs are that they are not accessible to everyone, and as such, cannot be the only solution for enhancing access to quality education. One challenge from the perspective of educators is that the development of MOOCs is both energy and time consuming, while from the side of students, there is low completion rates as many participants enrol in MOOCs but only a small number complete their course. According to Zhang (2016), recent evidence shows that only 7-10% of enroled participants actually finish their course. However, few educators are positive about the provision of formal course credits to students for completed MOOCs.

Contextualising MOOCs to African Local Needs

In the information age and knowledge based global economy, the flow of information and knowledge production remains asymmetrical, reflecting the entrenched inequalities between the Global North and the Global South in various sectors, including education provision. Unsurprisingly, due to the digital divide between these two regions of the world, the Global North is predominantly the producer of knowledge while the Global South is principally the consumer of such knowledge.

This scenario has permeated the arena of online education and, therefore, MOOCs. As such, a lot of the MOOCs available online are created by education providers in Western countries with learning content reflecting the contexts in which and for which it was created. Apart from learning content, the

digital context of the countries where MOOCs originated from as well as where they have proliferated, i.e., the developed countries, is different from that of developing countries like Namibia. Access to MOOCs is mainly free but one requires Internet access, which is a challenge in developing countries in Africa. Therefore, the question is, how does one modify MOOCs to suit the African context, both in terms of content and access?

Various options are available. Some MOOC providers declare the learning content generated by course participants as open educational resources (OERs). An example of a MOOC provider that applies this principle is iversity whose terms of use regarding user generated content includes its "right to distribute, reproduce, adapt, make available, broadcast and retransmit and to recite, perform and present in public" as well as the right to make avail generated content "in any form, and to undertake any adaptations and reproductions that are required and to permit reproductions to other Users" (iversity, 2016).

One way to contextualise MOOC content is to harvest, adapt and customise it for local contexts, including curricula structures, learning outcomes and learner preferences. The design of most MOOCs enable easy repackaging of content by choosing bits and pieces that are relevant to educators' local teaching needs. This can be referred to as course supplementation whereby the content of MOOCs is pooled, adapted and repurposed to add value to the course delivery of educators in higher education. Topics of high demand among learners or of greater difficulty can be primed for this purpose.

Another way to repurpose MOOC content is to use annotations on content generated by others on MOOCs. This involves educators adding personal insights into selected course content such as by providing local examples equivalent to foreign concepts used in the content or adding learning activities flavoured by local curricula. As far as curricula demands and local standards are concerned, the restructuring of MOOC content to suit the design of local curricula or to meet the educators' pedagogical approaches and learners' learning styles is another example.

The models of MOOC contextualisation described above focused on content harvesting and adapting, otherwise called curating. If one shifts the content from content to delivery mechanisms, another challenge and opportunity for contextualisation presents itself, namely digital access and connectivity. Unlike developed countries, most African countries have lower Internet access levels as well as lower quality connectivity. Liyanagunawardena, Williams and Adams (2013) describe the challenge of accessing learning content such as high-definition videos that suit developed countries' participants well while disadvantaging developing countries' participants, who may be unable to download videos or to use online video conferencing tools such as Skype of Google Hangout. This picture is not dissimilar to most African countries where poor bandwidth presents similar problems. Such a challenge requires educators using MOOCs to find alternative means of enabling learner access to learning content such as those discussed above.

Another challenge that distinguishes Africa from developed countries is that access to the Internet takes place mainly through mobile devices rather than computers. This scenario demands that contextualisation of MOOCs should involve both fostering access to MOOC learning content offline as well as modifying content for mobile device access. The former is easier as it simply involves downloading content for offline access but the latter demands more as it requires content to be

adjusted for consumption through mobile devices. This can involve re-chunking of content and/or the delivery of such content through mobile applications rather than through browsers.

Notwithstanding the discussion so far, it is also noteworthy to indicate that the "Open" in MOOCs does not always refer to OER, but rather to open registration for anyone with Internet access. Thus, unlike the open education movement spearheaded by MIT with their OpenCourseWare, MOOCs are considered to generally have strict copyright terms (Liyanagunawardena, Williams & Adams, 2013). This particularly applies to content-based xMOOCs given their massive reach and commercial orientation. To navigate the MOOC landscape it is necessary to distinguish those with open accessibility from those that do not demand skill and time from educators and learners alike.

Inter-institutional Collaboration on Creation of MOOCs

The idea of inter-institutional collaboration is a feature of the knowledge economy where educational institutions can respond to modern needs by transforming their roles and *modus operandi* regarding teaching, research and other key activities. With a shift from materials to services and knowledge in knowledge economies, educational institutions are restructuring themselves from generalist institutions into centres of specialized knowledge interconnected by communications technology, where "each knowledge centre develops its own skills in depth around its core competencies and broadcasts its needs and capabilities to others – combining with them to solve specific problems as required" (Quinn, 2001, p. 32).

According to Quinn, institutional relationships in knowledge economies are characterised by collaboration instead of competition, borne out of "mutual need, common interest, and intellectual respect" (2001, p. 32). The need for collaboration is further necessitated by the proliferation of information communication technologies that have rendered universities as just one of the sources of knowledge rather than being the main source as it was in the past. Quinn (2001) argues that universities have shifted from being centres of knowledge to being "access nodes on the knowledge network" (p. 35). Therefore, Quinn suggests the role of education in a Web-based world should be redefined from that of providing students with knowledge to that of enhancing their ability to "develop their own valid mental models for analysing, across disciplines, situations no one has seen before" (2001, p. 35). This requires educational institutions to break down boundaries and promote openness to truly be nodes on a network that fosters student access to knowledge wherever it may be found.

Given the orientation towards and rationale for collaboration for educational institutions in knowledge economies, a status that most African countries are ambitiously aspiring to achieve, the pertinent question would be how could institutions of higher learning in Africa, whether in the same or different countries, collaborate on MOOCs creation? This question and others, such as how institutions of higher learning can actually collaborate in the creation and use of MOOCs, have been addressed in the subsequent discussion.

Models of Inter-Institutional Collaboration

Inter-institutional collaboration in areas of teaching and learning "allows faculty members to specialize in topics they know and enjoy. As a result, students benefit by having a widely read and deeply experienced faculty member in every course they take" (Dow, 2008, p. 176). According to Dow (2008) collaboration in distance education takes place along a scale:

> … from instructional design among a team of faculty collaborating across institutional boundaries, class-to-class collaboration in which classes at different institutions work together, to institution-to-institution collaboration in which different institutions work together to offer complete degree or continuing education programs to students at distant sites (Dow, 2008, p. 171).

There are global examples of inter-institutional collaboration in offering online courses as well as MOOCs. The virtual university is one concept that embodies the notion of inter-institutional collaboration in the delivery of courses using information communication technologies to enhance access to higher education. Supported by technology, such collaborations can be multi-institutional, multi-state and multi-national, where collaborating institutions can deliver modules, courses and degrees to individuals and groups of learners who interact with faculty using both synchronous and asynchronous modes of interaction (Sejzi, Aris & Yahya, 2012).

One good example of an inter-institutional virtual university is in Finland where 21 universities created the Finnish Virtual University (FVU), a consortium and collaborative university network whose aim was to "offer flexible net-based educational services as a joint venture between universities, research institutes and business enterprises" Kylama, 2005, p. 109). Some of the roles of the FVU are that it "develops flexible study opportunities across university boundaries, promotes the shared use of online instruction and educational materials, produces ICT training and support services for shared use" (FVU, 2006). According to the FVU, the Finnish Virtual University supports student mobility by allowing students who are enrolled at one university to take part of their degree's courses at another university without additional cost to the student. Furthermore, the FVU also promotes competence development through the sharing of expertise and research, sensible division of labour, expertise and collaboration (FVU, 2006).

Another example of inter-institutional collaboration is found in Hong Kong where the University Grants Committee (UGC), made up of eight Hong Kong universities, collaborates on the development of MOOCs. According to Hong (2016), the objectives of the collaborative project were to:

> … establish a joint e-learning platform for the sharing of online courses, use the platform for piloting innovative pedagogies, foster collaboration among institutions by packaging related courses, provide a platform for collecting data on students' learning patterns and perform learning analytics for enhancing the learning experience of students, and provide a platform for outreaching to post-secondary and secondary school sectors.

The literature reviewed indicated that MOOCs have a widespread adoption in several universities as a virtual learning environment. However, each university has no connection with another, particularly in the African context where the use of MOOCs is relatively new. Thus, it is difficult for students in one university to enrol in any readily available courses from another. Therefore, there is a

need to suggest a framework for collaboration among African higher education institutions in MOOCs.

A Framework for Collaboration of African Higher Education Institutions in MOOCs

There are various ways in which higher education institutions in Africa could take better advantage of the promise of MOOCs through collaboration. Examples from Finland and Hong Kong discussed above offer a guideline on how course offerings and collaborations could be arranged. The Finnish model requires higher education institutions to offer credit bearing online courses individually and open them up to students at sister institutions that are part of the collaboration. These courses would then be OOCs (Open Online Courses) that are not "Massive" as they are not open to just anyone. For this to work, higher education institutions in Africa would need to initiate a credit transfer system that would enable students to transfer credits obtained from a course at one institution to their home institution. A similar system is already in place in Europe, where educational institutions from 46 signatory countries that have agreed to the Bologna Process and ascribe to the European Qualification Framework use the European Credit Transfer and Accumulation System or ECTS to facilitate student "credit accumulation and transfer based on the transparency of learning outcomes and learning processes" (European Communities, 2009, p. 11). ECTS basically describes the:

> … workload (time students typically need to complete all learning activities (such as lectures, seminars, projects, practical work, self-study and examinations) students need in order to achieve expected learning outcomes: what a learner is expected to know, understand and be able to do after successful completion of a process of learning (European Communities, 2009, p. 11).

Given the fact that most higher education institutions in Africa are governed by qualifications frameworks, it should be easier to formulate a credit transfer policy that could guide student credit accumulation and transfer through MOOCs. Another collaboration framework option is to use the UGC model, whereby all institutions create a common course platform from which MOOCs would be administered. The UGC is more truly "MOOCish" as courses are opened up to learners not enrolled with universities, including post-secondary and secondary learners. For students' learning to be credited, this model would still require a credit transfer system to be in place. It may also work best using blended approaches whereby students enrol for the MOOCs offered, while authenticated assessment would take place in individual/ home institutions' controlled face-to-face environments.

One advantage that Africa has is the enabling environment that can facilitate this process. Firstly, all higher education institutions ascribe to one qualification framework, which should make it easier to formulate a credit transfer system. At the continental level, the African Quality Assurance Network (AfriQAN) has been established with the purpose of providing assistance to higher education institutions with regards to quality assurance and harmonisation of higher education in Africa. There are also other initiatives such as the African Union's Strategy for Harmonisation of Higher Education in Africa, launched with the objective to develop quality assurance mechanisms in Africa (Shabani, Okebukola & Oyewole 2014). The Harmonisation of African Higher Education Quality Assurance and Accreditation (HAQAA) Initiative, is one funded by the European Union (EU) in partnership with the African Union (AU), and has been established to support the development of a harmonised quality assurance and accreditation system at the institutional, national, and regional levels. One of the primary activities of the Harmonisation of African Higher Education Quality Assurance and

Accreditation Initiative (HAQAA) was to develop African Standards and Guidelines for Quality Assurance (ASG-QA). All these initiatives could be used as a platform for achieving collaboration in MOOCs between higher education institutions in Africa as summarised in Figure 2.

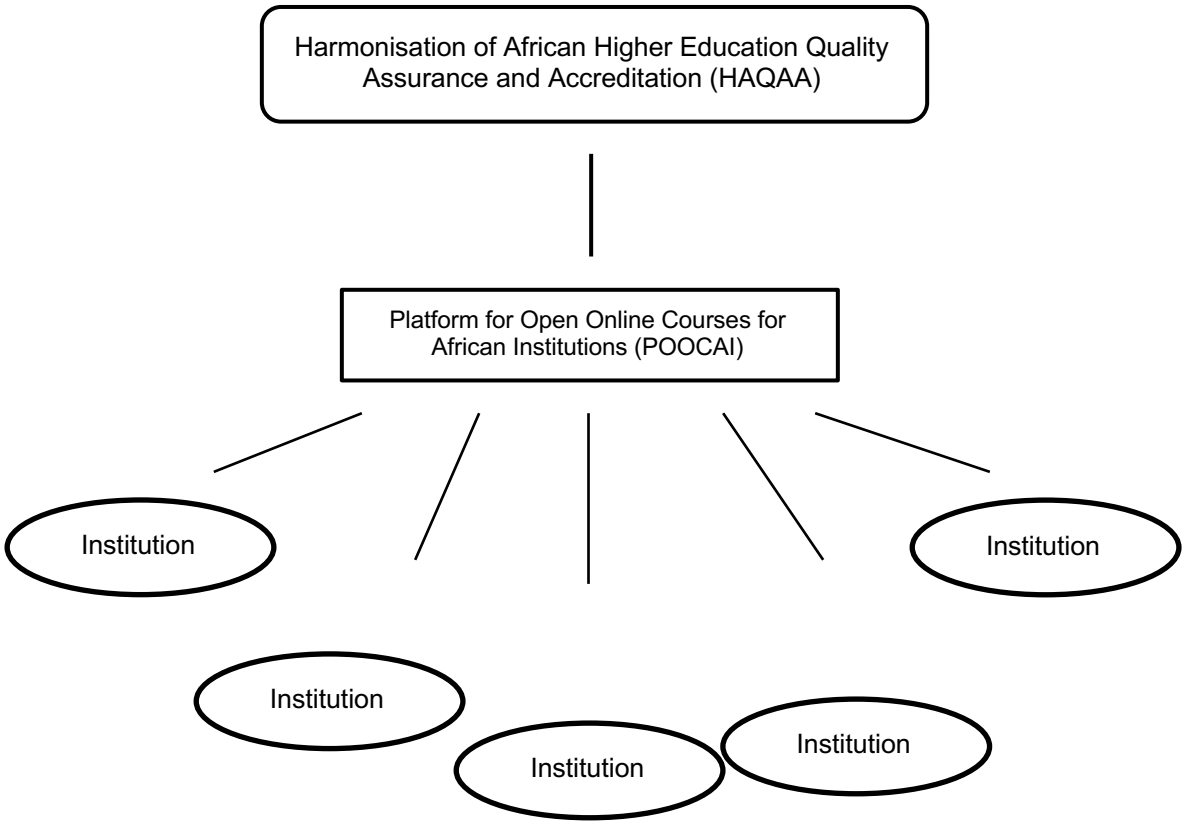

Figure 2: The POOCAI Framework

Source: authors' own design

Figure 2 above proposes the framework that would guide the operationalisation of MOOCs in African higher education institutions. Essentially HAQAA, with which all national quality assurance bodies would be aligned, would provide the overall standards and operational regulations for the MOOC platform, namely the Platform for Open Online Courses for African Institutions (POOCAI), which is just a working name.

This platform will host the MOOCs that all affiliated institutions would be able to access. But how would these institutions integrate the MOOCs into their curricula? Pérez-Sanagustín, Hilliger, Alario-Hoyos, Kloos and Rayyan (2017) provide a framework for using MOOCs as part of hybrid education or blended learning. Figure 3 represents that framework which institutions can make use of to guide their strategies for integrating MOOCs into their curricula.

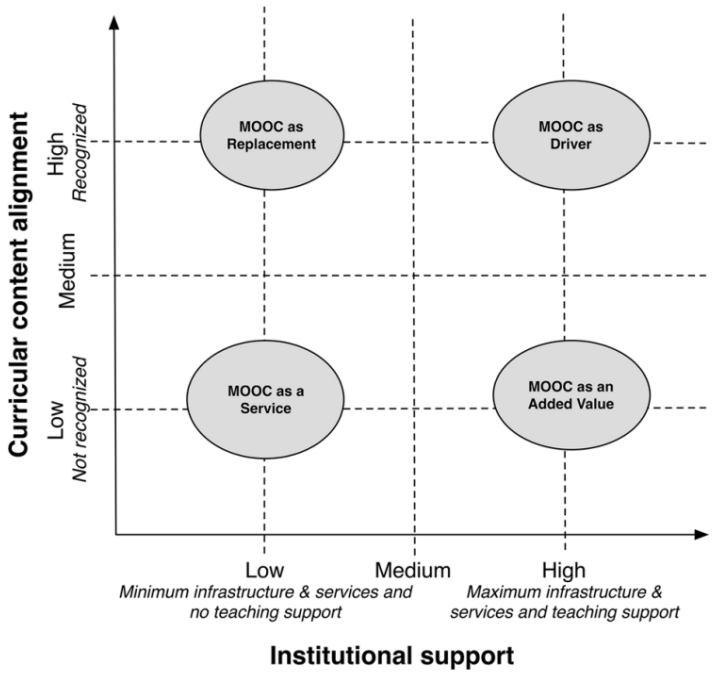

Figure 3: Framework for integrating MOOCs into the curriculum

Source: Pérez-Sanagustín et al (2017, p. 51)

The curriculum integration framework by Pérez-Sanagustín et al (2017) makes provision for various ways in which MOOCs can be used depending on the preferences of the institution. According to Pérez-Sanagustín et al (2017, p. 51), these range from courses that require little or no institutional support such as "MOOC as a Service" which students may voluntarily enrol in without such courses being aligned with the curriculum; and "MOOC as Replacement" where the online course actually replaces the institutional course (complete alignment with the curriculum). The other two categories of courses require institutional support such as providing infrastructure. One is "MOOC as an Added Value", where an institution provides all necessary support but the course may not necessarily be aligned to the curriculum. The other, the "MOOC as Driver", offers an option for a traditional course in the curriculum to be organised around the MOOC.

Conclusion

MOOCs are an emerging technology and approach to the delivery of online learning. The benefits offered by MOOCs such as fostering access to quality higher education and to quality learning materials for both educators and students are obvious. At the same time, challenges that exist within the nature of MOOCs are that they require technology and Internet-oriented solutions, and they are predominantly of Western origin and less open in terms of the reuse of learning resources, which we have highlighted. However, given the growing access to the Internet in most African countries and the growing demand for quality higher education, lifelong learning and the challenge faced by educators at educational institutions to meet the learning demands of their nations, the time is ripe for educational institutions to take advantage of the wealth of opportunities offered by MOOCs.

This paper has unearthed interesting insights regarding MOOCs and their potential for use in Africa. In terms of pedagogy, there are implications for higher education institutions such as the need to address issues like the digital divide within countries in order to promote equitable access to online learning for all. Of particular importance is the need to develop African learners' and educators' 21st century digital literacies to enable them to take advantage of MOOCs. Educators can curate only quality content and facilitate online learning if they have adequate digital skills. There is also a need to support the use of innovative pedagogies using connectivist learning that comes along with MOOCs.

Another issue that needs to be addressed is the perceptions towards MOOCs, which, if negative, can negatively affect the adoption of MOOCs by educational institutions in Africa. A study in Europe by Gaebel, Kupriyanova, Morais and Colucci (2014) found that a lot of educators (42%) had mixed feelings about MOOCs while one out of five had limited knowledge about MOOCs, which also influenced their decisions to adopt or ignore them. This indicates that attitudes towards MOOCs and knowledge about them needs to be a priority in any strategy to promote the use of MOOCs in Africa.

When it comes to inter-institutional collaboration, examples of models that could be useful in this regard are plentiful, while the local policy structures can be supportive of collaborative initiatives of this nature. The way forward would be to choose a collaboration model suitable to local needs and to put in place a specific operational framework in line with the selected model. At the same time, it is clear that educators have various ways in which they can contextualise MOOCs, including curating content and repurposing and restructuring it to fit their own purposes; using blended learning approaches to make use of learning content while designing their own learning and assessment activities, and to find ways of fostering access to MOOCs through the use of mobile devices.

Recommendations

There is a need for both theory and practice-based research in the area of open education and related areas in general, and MOOCs in particular in the developing countries of the Global South. The literature clearly shows that the research into and practice of MOOCs is unhealthily dominated by the Global North, leaving developing countries, that arguably can benefit the most from open education practices, as receivers of research knowledge and MOOCs originating elsewhere, with context-relevant challenges. The study shows that for MOOCs to be accepted in higher education, general open education practices need to be promoted to prepare the ground by enhancing changes in attitudes, pedagogical practices and overall openness to change. At the same time, practical interventions at the local, national or instructional level need to be considered to equip educators with skills on how they can appropriate MOOCs in their teaching, such as curating content and repurposing and restructuring courses to fit their own purposes. As for students, there is a need to promote self-directed learning and collaborative learning approaches that would enable them to take advantage of MOOCs. Further research should focus on the practice of using MOOCs, using some of the models suggested in this paper by looking at aspects such as educator and student experiences, and the impact on learning achievement and usefulness of MOOCs during times of educational crises such as the COVID-19 pandemic.

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