Enhancing Distance and Online Education Through the Use of Massive Online Open Courses (MOOC) in Nigeria

BY

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Abstract

the paper discusses general introduction of massive online open courses as advance method of distance/online learning, the state of distance/online learning in Nigeria, statement of the problem that the led to undertake the research, MOOCs as way forward, MOOCs advantages, MOOCs challenges, and challenges of implementing MOOCs in tertiary institutions in Nigeria. The paper concludes and recommends that appropriate ICT facilities should be provided with connected network devices, distance learning software application such as Coursera, Udacity, Iversity or edX should be installed to a specific computer server, campaign awareness should be done to faculty members on how to participate in new learning flat-form, and applicants should be informed massively on the available opportunity in the institutions.

Keywords- **Enhancing, Distance Learning, Online Education, Use, Massive Online Open Courses**

Introduction

Massive Online Open Courses (MOOCs) are courses designed for large numbers of participants that can be accessed by anyone anywhere as long as they have an internet connection, are open to everyone without entry qualifications, and offer a full/complete course experience online for free (Luaran, 2013). Massive open online course or more commonly known as MOOC is an online course that is accessible via the web and offers unlimited participation. According to Educause (2014), a massive open online course (MOOC) is a model for delivering learning content online to any person who wants to take a course, with no limit on attendance. MOOC incorporates both the traditional and modern course materials for learning such as videos, readings, projects, assignments and many more.

MOOCs are a relatively recent online learning phenomenon, having developed from the first early examples five years ago, they are now generating considerable media attention and significant interest from higher education institutions and venture capitalists that see a business opportunity to be exploited. They can be seen as an extension of existing online learning approaches, in terms of open access to courses and scalability, they also offer an opportunity to think afresh about new business models that include elements of open education. This includes the ability to disaggregate teaching from assessment and accreditation for differential pricing and pursuit of marketing activities (Yuan and Powell, 2013). In recent years, colleges and universities have been adding more online offerings to meet students' needs and expectations in terms of accessibility and affordability, as a means to accommodate their financial constraints and to help them balance family and workplace responsibilities. Online programmes are resources for students and working adults, who are increasingly seeking such programmes for degree completion and career advancement.

MOOCs are seen as an important tool to widen access to higher education for millions of people, including those in the developing world, as a means to ultimately enhance the quality of their lives emerging and developing countries are already integrating and implementing MOOCs in their national and professional education initiatives. (Mulder & Jansen, 2015). MOOCs are online courses designed for large numbers of participants, can be accessed by anyone anywhere as long as they have an Internet connection, are open to everyone without entry qualifications and offer a full/complete course experience online for free and which has the following feature:

➢ Massive: designed for, in theory, an unlimited number of participants. This means that the course is designed such that the effort required to provide all services does not increase significantly as the number of participants increases

➢ Open: access to the course is free, and there are no entry qualifications

➢ Online: the full course is available through the Internet (using a laptop or desktop computer, a tablet computer or a smartphone)

➢ Course: the offering is a course, meaning that it offers a complete learning experience i.e., it is structured around a set of learning goals in a defined area of study and includes the course materials, assessment tools such as quizzes, feedback, an examination and a certificate of completion.

The State of Distance and Online Education in Nigeria

Online and distance education (ODE) has now been an option for those have less opportunities for normal and ordinary education in Africa especially Nigeria. In this direction (Adekanmbi, 2004) observed that distance education has become an acceptable mode of

education in Africa and particularly in Nigeria providing access to the teeming population with major challenges of inaccessible education. National Open University of Nigeria (NOUN) was established in 2002 and is the only accredited singled-mode University providing open and distance learning education in the country. The main academic activities of the students take place at the study centres that are spread across the country as Osang, (2012) indicates in his research that in 2012, NOUN has forty seven (47) study centres all over Nigeria; he further added that facilitations and examinations are held at the study centres. Due to the nationwide spread of the Institution and the opportunities which ICT offers as a catalyst in the delivery of open and distance learning, it is currently used in almost all the stages of the students' study circle namely the application stage, the admission stage, the Registration, the learning stage, the evaluation stage and the transcript stage. In all these stages, the students are expected to be online (except the evaluation stage for now) in order to carry out these activities. In addition, course materials are also hosted on the website for downloading by the registered students. Tutor marked assessment (TMA) are taken online in real time mode. Each of the courses has four TMAs with twenty questions in each TMA. This implies that a student with eight courses must take 32 TMAs to form the 30% of the student's continuous assessment. It therefore means that every NOUN student spends quality time on the internet (Osang, 2012).

The establishment of centre for distance learning and continuing education (CDL&CE) in university of Abuja in 2001 was to meet the desired need and provide the federal capital Tartary (FCT), Abuja an institution whose objectives could meet with ideals and concept formed its establishment with national outlook (COL Int. 2001). In 2015 the Ahmadu Bello University has established Distance Learning Centre with the mission of

ensuring qualitative, accessible and timely delivery of approved academic programmes to its students without distinction based on geographic location, race, sex, religion or other affiliations. The Centre shall be a unique Distance Learning Centre of repute excelling in the delivery of Certificate/Diploma, undergraduate and postgraduate programmes in all fields to advance the scope of ABU's reach in educational delivery as envisaged by the founding fathers of the University (ABU official website, 2017).

Nigeria must utilize this opportunities due some the benefit that Kessler in his report, indicates that will be impacted in many college and universities have online learning. However, he further noted that most agree MOOCs can, as Thrun believes, make a major contribution to global learning, especially where there are limited educational opportunities. In case of Nigeria with the highest numbers of universities and research institutions in sub-Saharan Africa, what huge of amount will be save if the systems been adopted in Nigeria regardless with educational opportunities?

Statement of the problem

Distance learning embraces minimal physical contact between the teacher and students but emphasize much reliance on e-communication, this implies that the learner receives the formalized learning while he/she in remote location (outside the campus) regardless with time differences and geographical zone. Massive online open courses is an advance distance/online learning which can accommodate large numbers of applicants, in Nigeria there is more demand on education both undergraduate and postgraduate due to the fact that necessitated to get knowledge, employability, and life security. By such huge demand on education to tertiary institutions there is no way to for our institutions to accommodate even half of the applicants unless the system has been changed. The tertiary

institutions in Nigeria have got the opportunity to admit only 30-40% student each year. The situation remained unchanged that why this paper highlights possible application of MOOCs in tertiary institution in Nigeria.

MOOCs as Way forward

By creating opportunities to improve the educational system, MOOCs are viewed as having important policy implications related to the future of education. For policy-makers and international organisations, the main interest in MOOCs lies in their perceived potential to enhance access to higher education and lifelong learning by both improving the quality of education available (especially in developing countries) and providing higher education at a cost greatly below that of conventional higher education. Based on the present initiatives (NOU, 2014), the following reasons for governmental involvement in MOOCs are frequently mentioned:

- ➢ To promote the development of a cutting-edge education
- ➢ To stimulate and motivate the adoption of new technologies and new forms of learning.
- ➢ To offer expansive, open, free, accessible and always available knowledge (continuing education) within relevant educational fields
- ➢ To combine online and campus education
- ➢ To expand access, marketing and branding, as well as the potential for developing new revenue streams
- ➢ To reap the benefits presented by collaboration in virtual learning environments, including peer-to-peer learning, increasing digital skills, amplifying networks and recycling knowledge.
- ➢ ƒ To use MOOCs as an admissions tool.

> To increase enrolments and applications from students who want to "try before they buy" when considering university.

In order to be realistic to current situation on funding and running cost of our institution some feature of traditional education should be adopted such as:

> Offering credit and charging tuition

> Creating new for-fee courses and programs

> Drawing MOOC participants into existing, full-tuition degree programs

> Increasing class sizes

> Licensing fees for use of MOOC materials or data by other institutions

> Fees for additional services, for example, online tutoring, face-to-face instruction with a local instructor

> Grant revenues

> Matchmaking or training for employers (Hollands, &. Tirthali, 2014)

Literature Review

Massive Open Online Courses (MOOCs) have recently received a great deal of attention from the media, entrepreneurial vendors, education professionals and technologically literate sections of the public. The promise of MOOCs is that they will provide free to access, cutting edge courses that could drive down the cost of university-level education and potentially disrupt the existing models of higher education (HE). This has encouraged elite universities to put their courses online by setting up open learning platforms, such as edX. New commercial start-ups such as Coursera and Udacity have also been launched in collaboration with prestigious universities, offering online courses for free or charging a small fee for certification that is not part of credit for awards. Larger corporations such as Pearson and Google are also planning to move into the higher education sector as

global players and are likely to adopt a MOOC-based approach as a part of their plans. A new company, Future learn, has been launched by the Open University in the UK, to bring together a range of free, open, online courses from leading UK universities for learners around the world (Futurelearn, 2013).

From open access to open educational resources, and more recently, open online courses, there is growing momentum among HE institutions to participate in this "open" movement. For example, the UK Open Educational Resources programmes launched in 2009, have successfully made a significant amount of new and existing teaching and learning resources freely available worldwide with copyright licenses that promote their use, reuse and re-purposing (JISC, 2012). However, although sustainability issues were a key concern of this programme, the identification of a sustainable approach for the development of OERs in institutions has proved elusive. With the backdrop of significant amounts of money invested, a criticism of OERs is that they have not yet affect traditional business models or daily teaching practices at most institutions (Hollands, &. Tirthali, 2014).

MOOCs as an innovation with great potential to widen participation, promote lifelong learning and serve as an opportunity to promote higher education opportunities more generally' (QAA, 2014). In 2014 approximately 1,000 MOOCs were available from universities in the USA, and 800 from European institutions, and in several languages besides English (Bates, 2014). MOOCs have certainly led to new discussions about teaching and learning, but the development of MOOCs is also controversial. Arguments seem to fall into two camps. Those who see MOOCs as revolutionary, suggesting universities should seize the opportunities presented by MOOCs (Barber et al, 2013). This position has been echoed by governments, vice-chancellors and in the press, with claims MOOCs would 'change teaching,

learning and the pathway to employment' and that 'nothing has more potential to enable us to reimagine higher education than the massive open online course' (Friedland, 2013).

Others have called MOOCs a disruptive technology (Christensen, 2010), but opinions are divided about their value and importance. Some argue that they open up access to education and hence foster social inclusion, others cynically suggest that they are merely a 'marketing exercise' (Conole, 2013, p 2). As part of a 'digital revolution', MOOCs are celebrated for opening up education on an unprecedented scale through platforms such as Coursera and FutureLearn (Brabon, 2014, p 1). However, some suggest MOOCs are simply another instance of the hype around technology in education, a more modern version of educational broadcasting, which does not affect the basic fundamentals of education (Bates, 2014). Below is some of the application system that used normally in teaching and learning MOOCs

a) **Coursera**

Coursera is an educational platform that provides free course online and it is available for everyone from all around the world. This educational platform collaborates with top universities worldwide to offer the best possible courses to the users. There are many courses provided by the websites including Biology, Humanities, Social Sciences and many more. These courses take about six to ten weeks long with the aid of video lectures every week. Coursera provides quizzes, weekly exercises and many more to assess the students' performances. With the use of Coursera, students will be able to learn at their own pace and still receive a higher education (Coursera, 2017)

Features of Coursera

➢ Users get to learn for free.

➢ There is large variety of courses offered by Coursera

➢ The assessments at the end of the course enable users to keep track of their progress.

b) Iversity

Iversity is a platform for Massive Online Open Courses (MOOCs) and offer opportunities to all users including students, professors, lecturers and many more to learn or even use this website as a platform to conduct online courses. Other than that, with this website, professors are also able to extend their hand to thousands of students from all over the world. There are many different courses provided by Iversity such as medicine, biology, physics, law and many more. With Iversity, anyone from all over the globe is able to access education online for free (Iversity, 2017).

Features of Iversity

➢ Users get to learn online anywhere and anytime.

➢ Money could be saved from paying for university enrollment

➢ Professors could conduct online classes which are much easier to handle and monitor.

➢ Thousands of students can be reached by the professors just through Iversity.

➢ Users can also get completion certificates as a proof of their enrollment.

c) edX

edX is a platform that provides users from all over the globe an opportunity to transform themselves by education through cutting-edge technologies , creative and innovative pedagogies and intensive courses. edX gathers hands with other institutional partners and carry out researches to further enhance their understanding on the students' best way of learning and incorporate that into their courses. edX offers free courses for users to take up and learn online. This method of learning brings the learning experience to a whole

new level and opens an even wider perspective towards learning. As it is online and free, anyone from all around the world can join and learn together with the others (edX, 2017).

Features Of edX

➢ Students get to learn online for free.

➢ All users; students and professors, get to gather on one similar platform to carry out teaching and learning processes.

➢ Learning with edX saves time as it can be done online.

In light of the above there are numerous institutions that provide free MOOCs enrolment and which can be these web addresses:

➢ http://www.saylor.org/

➢ https://p2pu.org/en/

➢ https://www.futurelearn.com/

➢ http://academicearth.org/

➢ https://www.openlearning.com/

➢ https://www.canvas.net/

➢ http://alison.com/

➢ https://www.edx.org/

➢ https://iversity.org/

➢ https://www.coursera.org/

How MOOCs Work

MOOCs use Web-based tools and environments referred to as platforms to deliver education and classes in a new paradigm without regard for geographic boundaries and time zones and to much larger audiences in fact, tens of thousands of students. As the box above outlines, various MOOC entities own these platforms. One of the key differences

between MOOCs and the previous online approaches is that MOOCs are free. Students can take the courses at no charge, the pedagogy that MOOCs employ also differs significantly from "traditional online learning. Learning is accomplished via a "flipped classroom" model, whereby the instructor employs the Internet and other technologies to allow students to gain knowledge that used to be delivered via a lecture format and then use time in the classroom to work on problems together. The instructor can in turn then act more like a tutor walking among the students rather than a sage on the stage performing a monologue. MOOCs allow scaling of that approach to massive proportions, using social networking tools so that students help educate each other, as well as computerized assignments and assessments (Brian, 2013)..

Unlike older forms of online learning, MOOCs are not asynchronous; they are not like recorded class sessions that a student listens to at his or her own pace sitting in a library, completing one lesson and then starting a subsequent one. Rather, they are similar to on-campus courses, delivered synchronously on a defined schedule usually on a weekly calendar basis. A student in a far-flung location may take a particular lecture and do the related exercises in his or her own time zone during a convenient window of delivery. A student may also make up for missed lectures at his or her convenience, although that will lessen the impact of some aspects of the cohortlike approach to learning with fellow. Grainger, (2013) explained that the Coursera MOOC format is based on three areas of student engagement (as it is with nearly all of the large MOOC platforms)

    a) *Video lectures-* These are, at their most basic, recorded asynchronous sessions of the lead academic discussing topics related to their MOOC subject. Their format is not prescribed by Coursera and as such, a wide array of presentation styles can be used, from talking heads to interviews to picture in picture (for example, when

slides are being used). Subtitles (primarily English, but other languages are being introduced) are provided by Coursera.

b) *Assessment-* Assessment can be based on automatically-graded multiple choice questions, either as part of the video lectures (in-video quizzes) or taken separately. In addition to multiple choice questions (MCQs), course teams could also choose to use auto-graded programming assignments (for computer science-based MOOCs) or peer review assessment. Peer review can be used for more open-ended assessment formats and requires students to mark one another's work based on a defined rubric set by the instructor.

c) *Forums-* Grainger, (2013) explained that MOOC forums are the main method of student interaction with the content, each other, and the course teams. Forums are typically split into a number of threads, including (but not restricted to): general discussion, subject specific discussion, course feedback and technical feedback. Instructors can actively participate in these forums or choose to use teaching assistants to respond to students, escalating queries when needed. Using this format as a foundation, the academic teams were encouraged to decide the most appropriate pedagogical model within which their subject would be presented, while at the same time establishing a standard structure across all International Programmes' MOOCs.

The structural aspect is considered important in terms of managing learner expectations, while providing a taste of the commitment required studying a single course of one of our full degree programmes. Each course team was asked to develop a six week MOOC with between 5-10 learning hours per week, planning a range of student engagements and engaging content. We asked that teams aim to present no more than 2 hours of lecture

material per week, split into 10-20 minute 'chunks'. Pass marks for all MOOCs were set at 40% for a pass and 70% for a distinction, with the exception of the English Common Law MOOC which set pass and distinction marks of 50% and 70% respectively As a result of this design decision, our MOOCs used a range of different platform features and learning and teaching styles. As the English Common Law team included a dedicated learning technologist, working exclusively with the law team, it is perhaps unsurprising that this MOOC used the widest range of tools and services in comparison to the others.

MOOCs Advantages

Although much controversy surrounds the idea of MOOCs, studies have cited several advantages. Some of the areas in which MOOCs have been cited as most beneficial include increased options for accessibility, increased potential for student engagement, and expanded lifelong learning opportunities (Carr, 2012; Duderstadt, 2012).

a) *Accessibility-* Participants and instructors note benefits from the enhanced accessibility that MOOCs offer (De Waard, 2011). MOOCs, typically low cost or free, create irresistible appeal for recruiting potential participants. The online format of MOOCs offers access and flexibility and eliminates the need for prerequisites. Leber (2013) stated that, "as online education platforms like Coursera, edX, and Udacity burst onto the scene over the past year, backers have talked up their potential to democratize higher education in the countries that have had the least access". In addition, MOOCs have not been limited to college students, and/or professionals, but even younger students can participate in the MOOC experience.

b) ***Student Engagement-*** MOOCs are designed to enhance student engagement as improving student outcomes is one of the primary goals. According to Trowler and Trowler (2010), Student engagement is the investment of time, effort, and other relevant resources by both students and their institutions intended to optimize the student experience and enhance the learning outcomes and development of students, and the performance and reputation of the institution. Student and instructor participation, motivation, instructional method, and delivery are all important aspects necessary to create a MOOC environment conducive to learning. MOOC educators play a vital role in enhancing student engagement. Rodriguez (2012) highlighted eight important roles identified from an AI-Stanford course that included: amplifying, curating, way (direction) finding, aggregating, filtering, modeling, and staying current. Student engagement can also be enhanced as instructors recognize the learning styles of students and adapt their teaching strategies accordingly.

c) ***Lifelong Learning Experiences-*** According to de Waard (2011), "lifelong learning skills will be improved, for participating in a MOOC forces you to think about your own learning and knowledge absorption". MOOCs allow participants to pursue a particular interest or to continue their professional development. Beyond MOOCs conventional lifelong learning experiences, educational opportunities exist for underprivileged populations as a way to encourage lifelong learning. In addition, employers can utilize MOOCs to keep employees abreast of the competitive labor market throughout their lifetime and in a way that is cost-effective.

MOOCs Challenges

Although some educators recognize the advantages of MOOCs, several challenges exist. Among the most common challenges are individual instruction, student performance, assessment, and long-term administration and oversight.

a) *Individual Instruction-* MOOCs require course delivery to a large number of learners. They attract a wide variety of students with different learning styles from all around the world. It is a challenge for instructors to engage students, maintain their interest in the course, and tailor the learning environment to fit the need of each student. A solution proposed by Carr (2012) is machine learning. Machine learning utilizes computers to collect and analyze data from a learning system to test hypotheses about how people learn (Carr, 2012). Carr discussed that, during the course data collection process, every variable is tracked such as a student's pause during a video, increased feedback speed, response to quiz questions, revised assignments, and forum discussion. Collected data is then used to analyze student behavior and test how people learn. In this way, an instructor could tailor the learning environment to fit each student's learning style and needs. However, some researchers disagree with the use of machine learning. They believe that a critical component of education is the interaction between students and teachers. Machines cannot simulate the interaction (Carr, 2012).

b) *Student Performance Assessment-* One of the biggest challenges of MOOCs is the assessment of student performance (Rodriguez, 2012). Cheating presents a major challenge of online education (Carr, 2012). How to validate original work to prevent or detect plagiarism is one of the widely discussed challenges in online education

(Cooper & Sahami, 2013). Some solutions for the challenge are being proposed by institutions that offer MOOCs. For example, Udacity and edX use test centers for their online courses. However, the cost to students presents a barrier. Coursera attempted to use plagiarism-detection software in detecting cheating. Also, machine learning has been proposed to identify cheating by the analysis of learner behavior.

c) ***Long-Term Administration and Oversight-*** Those on the front lines of MOOC development and implementation warn that, although MOOC's might be open and free to participants, the costs to institutions can be significant. For example, course development assistance through edX can reach upwards of $250,000 per course with an additional $50,000 fee each time the course is offered (Kolowich, 2013). For instructors who develop their own courses, human resource needs include course development (typically 100 hours) and course management (8-10 hours per week) in addition to existing professorial duties. Some institutions have rejected the MOOC concept not because of resources, financial or human, but because of philosophical differences citing that MOOCs are contradictory to the overarching institutional mission. Amherst College was one that recently decided, by faculty vote, to decline an invitation to join edX. Although Amherst faculty were not opposed to exploring innovative teaching or delivery methods, the idea of joining a consortium of institutions through edX was not appealing (Kolowich, 2013).

Challenges of implementing MOOCs in Nigeria

a) ***Low Budgetary Allocations for ICT-*** Infrastructures (Weak Commitment) this is another threat for the implementation of online education in Nigerian. Government allocates very meager amounts budgetary allocations to the development of ICT in the

country. This has limited the scope of government's commitment towards full scale implementation of online education in the Nigerian in Tertiary Institutions as being experienced in the country. Osang, (2012) on his findings indicate that internet penetration in Nigeria especially in the rural areas is still very low. Also factors like the high cost of bandwidth, low computer literacy level as well as epileptic internet services are some of the major barriers preventing the students from accessing education through open and distance learning using the internet.

b) *Illiteracy-* It has been established that one of the major threat to online education in the Nigerian is lack of computer literate staff to handle various online services and applications that are peculiar to ICT in Tertiary Institutions. Without competent hands to handle and monitor the IT infrastructures, there may be no justification for the procurement of equipment.

c) *Energy and Power Factors-* During the study, it was clearly established that the failure of the government to implement online education is as a result of irregular power supply. In fact, a few of IT infrastructures have been reportedly damaged due to surges in the electricity distribution grid. A stable and regular power supply has been identified as a precondition for having ICT implementation in the ICT in Tertiary Institutions (Azeez, N.A. et al., 2012).

d) *Lack of IT Experts-* Online education being a new innovation in Nigerian Universities in the country is threatened by lack of skilled personnel to manage the infrastructure. The cost of training people to garner up-to-date skills has also skyrocketed and is unaffordable. Because of this, government is completely reluctant in introducing ICT Tertiary Institutions in Nigerian

Conclusions

With the increased number of opportunities come uncertainties. In recent years, the concept of online or distance learning has expanded to include a growing number of Massive Online Open Courses (MOOCs), free higher education courses open for enrolment for any Internet user. MOOCs are a recent trend in distance learning promoted by several prestigious universities. MOOCs promise to open up higher education by providing accessible, flexible, affordable and fast-track completion of universities courses for free or at a low cost for learners who are interested in learning. The popularity of MOOCs has attracted a great deal of attention from higher education institutions and private investors around the world seeking to build their brands and to enter the education market. Tertiary Institutions in Nigeria are now the appropriate time to adopt massive online open courses that due to the population and numbers of people seeking for admission every year and unfortunately 30-40% get the admission every year, the government should do necessary thing for the better future of generation.

Recommendation

The study recommends that:

1. Appropriate ICT facilities should be provided with connected network devices

2. Distance learning software application such as Coursera, Udacity, Iversity or edX should be installed to a specific computer server

3. Campaign awareness should be done to faculty members on how to participate in new learning flat-form

4. Applicants should be informed massively on the available opportunity in the institutions

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