



The Massive Open Online Courses (MOOCs) Initiative of the National Open University of Nigeria

L'initiative Des Cours De Masse En Ligne (MOOC) De L'universite Nationale Ouverte Du Nigeria

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Abstract

At the Pan Commonwealth Forum (PCF 7) hosted by the National Open University of Nigeria (NOUN) at Abuja in December 2013, the Vice Chancellor then, enthusiastically announced the commitment of NOUN to the Open Educational Resources (OER) and Massive Open Online Courses (MOOCs) initiative. This necessitated the creation of an OER unit by August 2014 with a mandate to stimulate OER/MOOCs awareness in NOUN and beyond as well as offer high quality MOOCs and foster collaboration with other institutions. With MOOCs NOUN seeks to reach out to more learners without cost on their part, it is hoped that this will tackle the problem of access and equity in education as well as improve the quality and level of acceptance of online education in Nigeria. Hence amidst collaboration with UNESCO, the Commonwealth of Learning (COL) and the Institute of Technology Kampur, the mooKIT platform developed by NOUN was deployed it enabled the institution to launch its (MOOC) in June 2016. This article shares experiences of this collaboration, it dwells briefly on the NOUN and MOOC, the collaborative efforts with IIT Kampur, the mooKIT platform and NOUN's MOOC on 'History and Philosophy of Science'. A number of challenges were identified and suggestion towards ameliorating them are advanced. It is envisaged that this experience will catalyse further collaborative efforts amongst institutions.

Résumé

Lors du Forum de Commonwealth (PCF 7) organisé par l'Université Nationale Ouverte du Nigeria (NOUN) à Abuja en décembre 2013, le vice-chancelier a annoncé avec enthousiasme l'engagement de NOUN pour les Ressources de l'éducation ouverte (OER) et l'initiative des cours en ligne (MOOCs). Cela a nécessité la création d'une unité OER en août 2014 avec pour mandat de sensibiliser les OER/MOOCs à NOUN et au-delà, ainsi que d'offrir des MOOC de haute qualité et de favoriser la collaboration avec d'autres institutions. Avec les MOOCs, NOUN cherche à atteindre un plus grand nombre d'apprenants sans frais de leur part. Il est à espérer que cela s'attaquera au problème de l'accès et de l'équité dans l'éducation ainsi qu'à l'amélioration de la qualité et du niveau d'acceptation de la formation en ligne au Nigeria. Ainsi, en collaboration avec l'UNESCO, le Commonwealth of Learning (COL) et l'Institut de technologie Kampur, la plate-forme mooKIT développée par NOUN a été déployée, permettant à l'institution de lancer son (MOOC) en juin 2016. Cet article partage les expériences de cette collaboration. Il s'attèle brièvement sur NOUN et MOOC, les efforts de collaboration avec IITKampur, la plate-forme mooKIT et le MOOC de NOUN sur « Histoire et philosophie de la science ». Un certain nombre de défis ont été relevés et des suggestions ont été faites pour les améliorer. Il est prévu que cette expérience catalyse d'autres efforts de collaboration entre les institutions.

Keywords: MOOCs, mooKIT, IITK, NOUN, Collaboration

Introduction

This paper dwells on the effort by the National Open University of Nigeria (NOUN) at making its academic course materials freely available for use by everybody in the world as Open Educational Resources (OER). It dwells chiefly on its desire to provide access and equity in education as well as improve the quality and level of acceptance of online education in Nigeria by developing some of its courses as Massive Open Online Courses (MOOC). MOOC aimed at according succour to the teeming number of disenfranchised youths in Nigeria who are denied university entrance due to the limited carrying capacities of the available tertiary institutions.

Also discussed is the collaborative efforts with IIT Kampur, the mookIT platform and NOUNs MOOCs on 'History and Philosophy of Science' and the envisaged collaborative activities with other universities in Nigeria which was undoubtedly aimed to be of immense benefit to the nation.

Massive Open Online Courses (MOOCs)

Massive Open Online Courses (MOOC) are short courses aimed at unlimited participation and open access through the web as well as making higher education readily accessible to the people. With MOOC, a learner can complete a course without physically attending face to face lectures, seminars or using the library. The learner can complete a course by resorting to the usage of academic materials posted online (NOUN/OER; UNESCO and EU, 2015).

Characteristically, there are no entry requirements for MOOCs and there are no geographical nor any form of restriction to categories of participants. As such, courses are accessible to everybody online. Other salient features of MOOC include the fact that they are led by erudite scholars who are ably assisted by a number of teaching assistants and courses are run two or three times a year. These courses require 1-2 hours of study weekly and may last as long as 5 weeks. Furthermore, the courses are self-directed, implying that the participant needs to follow the course materials diligently while completing the readings and assessment protocols. Participants are expected to draw support from a large community of co-learners via the online chat houses. They

are expected to meet high academic standards as they are subjected to rigorous internal quality assurance processes (NOUN/OER; UNESCO and EU, 2015).

According to Caine (2015), MOOCs format may differ from one platform to another but the common architecture includes a login prompt, course registration page, video lectures, discussion forums, quizzes, peer grading exercises, examinations and readings which would guide the user through the content. Students are also encouraged to form study groups and online networks. Caine (2015) further informed that most courses provide a syllabus with a schedule and detailed explanations about the content. He further emphasised that MOOCs has become a toast of many 'high calibre' ivory towers as many big - league universities are floating them and consequently attracting thousands of students to their institutions.

Types of MOOCs

There are two unique types of MOOC. That which emphasises the connectivist philosophy and that with a semblance of traditional courses. These were identified as "cMOOCs" and "xMOOCs. Whilst the cMOOCs are pedagogically connectivist, encouraging that the learning materials should be aggregated rather than pre-selected and also remix-able, re-purposable with materials that are evolving and futuristic in nature, the xMOOC on the other hand are much more structurally traditional in nature. Furthermore, xMOOC are characterised by clearly specified syllabi of recorded lectures and self - tests. Whereas, for the xMOOC, the instructor is singled out and the expert provider of knowledge as the students are seen to play an advisory role to each other whilst seeking assistance (Okafor, Opeyemi & Agbu, 2016).

Benefits of Massive Open Online Courses (MOOC)

It has been informed that a number of benefits can be ascribed to the usage of MOOCs, some of these include but not limited to the followings, (NOUN OER, UNESCO & EU, 2015).

- The advancement of knowledge by making information freely available to all and sundry.

- Serves to bridge the gap between formal, informal and non - formal learners.
- Promotion of lifelong learning
- Broadening the scope of participation in higher education by expanding access to non - formal learners.
- Providing independent learners with internet connectivity the privilege of accessing materials and participating in learning activities of some of the best universities in the world.

The National Open University of Nigeria

The National Open University was formally established on the 22nd day of July, 1983 with a view of becoming the fountain head and spring board of modern open and distance education in Nigeria. The institution was however suspended by April 25th 1984, though the act establishing the institution was not abrogated.

However, a workshop on evolving a national policy on distance education in Nigeria held from the 27th- 29th September, 2000 in Abuja was a major turning point for Open and Distance Learning (ODL) in Nigeria. At the end of the workshop, participants evolved a ten-year plan for rejuvenating distance education in the country. Since then a number of things have happened which include;

- The enactment of a National Policy on Open and Distance Education
- The establishment of the National Virtual Library and
- The re-establishment of the National Open University of Nigeria, amongst other activities.

The National Open University of Nigeria was thus re-born on the 1st day of October, 2002 (Ikpe, 2008).

According to Agbu, Mulder, Vries, Tenebe and Caine (2016), the qualifier 'Open' in the name 'Open University' refers to the following set of possible features: open entry which does not require any formal certification, freedom of time, freedom of place, freedom of pace, open programming and open to all people and target groups. That is, a heterogeneous population of all ages. They further averred that not a

single open university in the world is fully open in all these six aspects of openness.

The National Open University of Nigeria and MOOCs Program

Inasmuch as many institutions are keying into OER, it still remains novel to numerous institutions in the West African sub region (Agbu et al, 2016). The National Open University of Nigeria ventured into the OER and MOOC initiative in education whence at the Pan Commonwealth Forum (PCF 7) hosted by the University at Abuja in December 2013, the Vice Chancellor then, Professor Vincent Ado Tenebe enthusiastically announced the commitment of the institution to the Open Educational Resources (OER) and Massive Open Online Courses (MOOC) initiative. He heartily announced all of the institutions course materials, which were already online, as OERs for everybody in the world to access.

Realising that there was quite much more to OER/MOOC than just mere declaration of course bases as such, the university set into motion a machinery towards the workability/implementation of this noble idea. Hence in August 2014, the university set up an OER/MOOC unit in a bid to properly key in and the unit has since then continually dedicated itself to learning and understanding the tenets of OER/MOOC. The National Open University of Nigeria, thus in collaboration with United Nations Educational, Scientific and Cultural Organisation (UNESCO) on the 9th – 12th September 2014 held a workshop at the Best Western Hotel, Lagos on OER and MOOC with the sole aim of sensitizing institutions in Africa on the need to embrace and practice these concepts.

NOUN is addressing two main target groups which are students and academics with its OER and MOOC approach. The approach entails raising awareness, technical training, conversion of existing course materials into OER as well as developing MOOC, and collaborating with institutions and organizations in OER and MOOC. It is worthy to note that the institutions students currently, can legally access up-to-date course materials through online services with computers and smartphones. This expectedly will cut down on the over dependence on the printed courseware's and pirated editions from illegal sources.

The target group of academics are not only located within NOUN but also extends beyond to other universities in Nigeria. NOUN's academic staff are guided in writing courses that primarily use existing OER materials, while stakeholders and academics of other universities are invited to join NOUN's initiatives to build a Nigerian open educational ecosystem (Agbu et al, 2016). A sort of global collaborative alliance is expected to be built for the development of university courses based on shared resources that are being improved on, as they are used in teaching and learning situations. Furthermore, MOOC are expected to be used to harness the rather broad foundation courses that are currently being taught singularly in universities. In the NOUN approach, the MOOC are OER-based, so they are available for re-use and improvement by academics of other universities in Nigeria or elsewhere.

According to Agbu et al (2016), embracing OER and MOOC is quite a natural response for NOUN given its mission and vision statement that seeks to provide highly accessible and enhanced quality education anchored by social justice, equity, equality and national cohesion through a comprehensive reach that transcends all barriers and to provide cost-effective, flexible learning which adds life-long value to quality education for all who seek knowledge.

They further reiterated that the 2012 Paris OER Declaration (UNESCO/COL, 2012) was a major booster for embracing the initiative as it recommended that States, within their capacities and authority, foster awareness on the use of OER/MOOC, facilitate enabling environments for use of ICT (bridging the digital divide), reinforce the development of strategies and policies on OER/MOOC promote the understanding and use of open licensing frameworks and support capacity building for the sustainable development of quality learning materials.

States as it were, are recommended to foster strategic alliances for OER/MOOC as well as encourage the development and adaptation of OER/MOOC in a variety of languages and cultural contexts, encourage research on OER/MOOC, facilitate findings, retrieving and sharing OER/MOOCs and encourage the open licensing of educational

materials produced with public funds. NOUN is aware of its position as a publicly funded university with a huge body of course materials which were also funded by the government. Thus, NOUN had concluded that it could in line with its vision and mission, stimulate access, social justice, and equity in knowledge by opening up content through the use of open licenses (Agbu et al, 2016).

The Open Educational Resources and Massive Open Online Courses initiative of the National Open University of Nigeria was presented to the Nigerian government and other stakeholders in the public and private sector at a seminar at Abuja, in December 2015. This event affirmed that NOUN was on the verge of becoming an OER-based Open University and a special home for MOOC. During the event, participants were presented with the first 40 courses to have been properly converted to OER by the institution along with an initial set of 3 courses which were in the process of being developed as MOOC. A new portal housing the courses (NOUN OER Portal) was also unveiled and NOUN became the first OpenupEd's associate partner from Africa and Asia (OpenupEd, 2015).

Amongst the expected clientele of NOUN MOOC are the very high percentage of disenfranchised youths, who are denied entrance into the universities, not because they are not qualified but due to the limited spaces available or the low carrying capacities of the conventional universities. This trend is highlighted in Table 1 below, it shows the number of applicants seeking placement in Nigerian universities and the actual number that could gain placement between 2011 and 2015.

Table 1: University Applicants and Admission Statistics (JAMB 2011–2015)

Year	No. Applied	No. Admitted
2011	1,300,000	300,000
2012	1,500,000	423,531
2013	1,600,000	417,341
2014	1,790,000	437,707
2015	1,610,000	485,338

Retrieved from <http://jamb.org.ng/> (2015)

Ikpe (2014) had observed that though the number of government and private universities in Nigeria were quite substantial, they are inadequate as they are unable to accommodate the ever - growing number of students seeking placement in the nation's universities. According to the writer, in the past three decades, the nation had witnessed an astronomical increase in student enrolment and number of schools available at all levels. He further observed that less than 20% of those seeking placement in the higher education sector gained admission. The bulk of those disenfranchised, is as a result of the limited spaces available and not necessarily because they were not qualified. This position was earlier emphasised by Ojerinde (2008), who had observed that for the year 2008, of the over one million candidates who sat for the University Matriculation Examination (UME), only two hundred thousand (200,000) were able to get placement. The situation remains unchanged as according to Okafor et-al (2016) statistics from JAMB show that yearly, from the approximately 1.4 million qualified young Nigerians who pass the mandatory Joint Admission and Matriculation Board Exam (JAMB), not more than 400.000 can be placed at a Nigerian university.

Quite a number have to wait for several years, making largely fruitless attempts at gaining admission into the available universities.

With the introduction of MOOC, this social problem can be ameliorated as most of these would be students can effectively take advantage of it to improve on their knowledge and skills. With improved patronage, an increased number of MOOC in relevant disciplines could be developed to cater for this disenfranchised spectrum of the society as well as all other persons who so yearn to key in. The expectation is that participants in the NOUN-MOOC may end up enrolling for the regular degree programmes on offer at the National Open University of Nigeria.

A report by Orr, Rimini & Van Damme (2015) informed that Open Educational Resources plays a very vital role in the education sector as it is a cost - effective source of high - quality educational resources, which aimed at improving access and quality to educational resources. The expectation is that NOUN, whose mission and vision statement

includes ‘widening access to and raising quality of higher education in Nigeria’ will obviously benefit enormously from embracing OER and MOOC.

Actualising the OER/MOOCs Initiative at NOUN

To actualise the OER/MOOCs dream of the National Open University of Nigeria, the university administration set up a dedicated unit for this purpose by August 2014. The unit was christened the NOUN-OER Unit and was charged with the responsibility of converting existing course materials into OERs and also developing MOOCs out of them. The efforts of the unit were complemented by competent instructional designers and Information Technology specialists as well as the academic staff from all the departments of the university.

At various times (September, 2014; February, 2015; July, 2015; November, 2015 and December, 2015), the OER unit organised workshops aimed at sensitising and introducing the participants to the concept, philosophy of Open Educational Resources (OER) and (MOOC). The workshops also aimed at training selected course writers on the processes of ‘OERisation’ of course materials and development of MOOC. This was done with the collaboration of UNESCO and the European Union (EU). About 350 senior staff of NOUN participated in the exercises which were targeted at transferring skills needed for ‘OERisation’ of course materials and development of MOOCs, such skills included; formatting of course materials using style sheet, adding value to the course materials by injecting new learning scenarios including pictures as well as the conversion of the materials to EPub, html and RTF (NOUN OER, UNESCO & EU, 2015). Discussions at the fora also informed on standardised licensing as with Creative Commons, emergent forms of open education and issues bordering on sharing and re-usage. Ultimately, navigation through instructional icons in the interactive version for mobile devices and podcast creation were also visited (Agbu et al, 2016).

Students and academics can access the published OER-based courses and MOOCs on a dedicated repository (NOUN OER Portal: <http://oer.nou.edu.ng/>). The figure below is an impression of the course

materials of a MOOC downloaded as an electronic book on a smartphone.

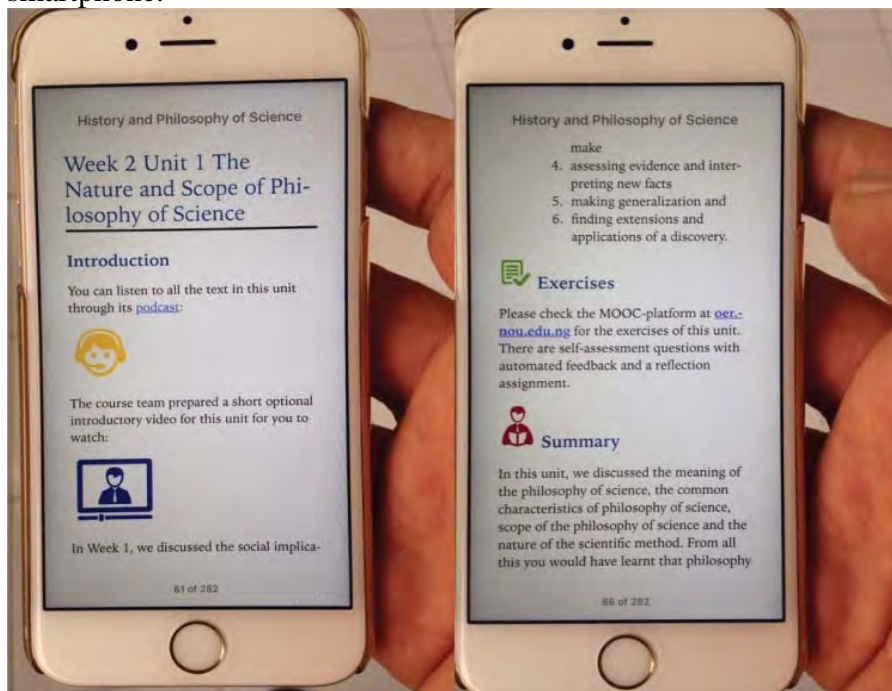


Figure 1: Snapshot of Course Material Downloaded as an Electronic Book on a Smartphone

Source: Agbu et al (2016)

By December 2015, collaborative activities with other universities, training institutes, quality assurance agencies and other stakeholders ensued, which encouraged the re-use of NOUN's OER-based courses and MOOCs in Nigeria and internationally. It is projected that in the not too distant future a significant percentage of NOUN course materials will be available as OERs as well as about 20 developed as MOOCs. This level of development it was averred would be attainable with the envisaged collaboration with other universities in Nigeria for the benefit of the nation.

NOUN Collaboration with IIT Kanpur

Collaborative activities between the NOUN-MOOC team and IIT Kanpur was facilitated by Abel Caine of UNESCO with contacts

established with Professors Balaji and Prabhakar. This resulted in the mooKIT team of Indian Institute of Technology- Kanpur (IITK) accepting to make its mooKIT platform available for the NOUN-MOOC team at no cost so they could design and manage its MOOC. In order to have a feel of the mooKIT, NOUN-MOOC team were encouraged to participate in an open course on the IITK mooKIT. In the final analysis, the team at IITK helped the NOUN-MOOC team to create an account which included username and password. This, with the attendant administrative right provided, enabled the content developers and Information Technology experts of the NOUN-MOOC team to be able to navigate on the platform. This collaborative effort of the mooKIT team in Kuala Lumpur, in conjunction with the Commonwealth of Learning (COL) and the NOUN-MOOC team gave rise to the birth of NOUN's own very first MOOC on the 'History and Philosophy of Science' (Agbu et-al, 2016)



Figure 2: Snapshot of the mooKIT Platform of NOUN MOOC
Source: (Okafor et-al, 2016).

The NOUN MOOC on History and Philosophy of Science

NOUN's first MOOC was on "History and Philosophy of Science". The course exposes learners to the origin and evolution of science, methods of scientific enquiry as well as scientific and technological

inventions. The course is an abridged version of a first year general course offered in all tertiary institutions in Nigeria.

In view of the low bandwidth challenges and poor Internet connectivity issues prevalent in most developing nations like Nigeria, the mooKIT platform turned out to be very suitable for the NOUN-MOOC initiative due to its simplicity.

In developing the MOOC on History and Philosophy of Science which is accessible on the dedicated URL of the mooKIT hosted platform at <http://www.nounmooc.org/>, the NOUN-MOOC team decided to firstly ensure that all academic learning resources including multimedia presentations and lesson plans were converted to Open Educational Resources (OERs). With this done, use and re-usage of the contents was made possible. On the homepage an overview that highlights all planned and active MOOC was provided. With this, learners could either use computers or mobile devices to participate in the MOOC. The design employed by the team for developing the MOOC on History and Philosophy of Science is the xMOOCs type in view of the fact that the nature of the existing self - study materials available at NOUN. The contents of the MOOCs which were didactic in nature were delivered through video lectures. They were broken down into five modules of five weeks' duration with a maximum of four study hours for activities such as assignments, presentations and chat room sessions.

The first week which is designated as 'Week 0' deals with the introduction of technical issues, organisational parameters, explanation of the platform and the mobile app to the learners. The subsequent weeks (weeks 1 – 5) usually commence with a two minutes' introductory video by the instructor, who will introduce the lecture for the week and state the objectives of the lecture. Lectures were pre-recorded by the week instructor using an open source tool known as Audacity. According to Okafor et-al (2016), the MOOCs team also prepared two weekly narrative slides that gave brief and concise pictorial summary of the contents using Microsoft PowerPoint and an example of 'play it in sync with slides' which is very close to video experience. Furthermore, Okafor et-al (2016) informed that the videos

were created using Microsoft Moviemaker to merge the podcast with the narrated slides. The duration of a single lecture was usually between fifteen (15) minutes to thirty (30) minutes and the compilation of video lectures aggregated by week ranged from approximately forty (40) minutes to seventy (70) minutes. Participants were invited to add topics for discussion to each lecture, which created threads of discussions between learners and instructors.

Summarily, the MOOC on History and Philosophy of Science had a total of twenty-eight (28) videos made up of thirteen videos for week 0. The first five (5) sets of videos introduced the courses and the next set, made up of eight (8) videos dwelt on how to navigate and use the platform. Each of the subsequent five weeks had three videos each with one of them introducing the course while the remaining two are on the lectures. Participants underwent both formative and summative forms of evaluation during the course of the exercises.



Figure 3: A View of NOUN-MOOC's Facebook Page
source: Okafor et-al (2016).

Challenges of NOUN MOOC initiative and Way Forward

According to Okafor et-al (2016) Massive Open Online Courses (MOOC) has been recognized as a revolution in higher education where needs are met with provisions, without having to worry about

space and distance. The researchers further informed that like with most innovations, the NOUN – MOOC had its share of challenges, some of these are mentioned here and steps taken to address them.

The challenges as itemized by Okafor et-al (2016) include but are not limited to; poor internet access, high dropout rate, the ivory tower mentality, connectivity issues, poor government policy and lack of access to computers. They further informed that all the technologically related issues were addressed by adopting the mooKIT Platform which by its nature is a light-weight MOOC Management System. The platform unlike others, is scalable and of low demand on a server. It is designed to be intuitive to use, appealing to mass audiences, and has simplicity as a central design principle. This implies ease of access and navigation for the participants. For the designer or instructor, it means ease of customization for multiple users and management of user traffic. It supports the usage of mobile devices, tablets, etc. efficient with server resources as such it is cost effective, it is also integrated with a Telephone exchange and completely built on open source platforms (<http://demo.mookit.co/>).

Interestingly, it has an indicator that shows the strength of the bandwidth of internet connection, similar to bars on cell phones and this provides visual indication to learners if connection is bad and prompt to use other content delivery options that mooKIT provides such as stream only audio and ‘play it in sync with slides’ which is often very close to video experience. Also if the broadband is too low for that, learners can receive a call on the phone and listen to the audio. In addition, a unique feature is the integration with social networking platforms such as Facebook and Twitter.

Conclusively, mooKIT was built to ameliorate challenges of running MOOCs in developing countries which are characterized by frail, unstable connections which makes streaming of videos difficult and expensive to boot.

Other institutional challenges such as dropout rate are being handled by counselors in the institution though personal reach out and sensitization/advocacy programs. The institution is collaborating with

relevant agencies such as COL, UNESCO and government regulatory agencies towards charting a workable policy.

Conclusion

With the growing emphasis on opening up quality education and reaching the unreachable, any effort geared towards internationalisation and liberalisation of contents need be taken seriously by all in the education sector and far afield. More so, the key to success in this kind of venture is through effective collaboration. Together we can always attain higher heights. The National Open University of Nigeria has taken the bull by the horns towards actualising this. The MOOCs initiative of the institution indeed strives towards reaching out to all at no cost and will hopefully be embraced by the teeming army of disenfranchised youths seeking admission into the conventional universities, which are constrained by their low carrying capacities. This will undoubtedly tackle the burning issues of access and equity as well as improve the quality and level of acceptance of online education in Nigeria and beyond her shores. The envisaged collaborative activities with other universities in Nigeria will be of immense benefit to the nation.

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