POTENTIAL IMPACT OF ONLINE EDUCATION ON PART-TIME DEGREE PROGRAMME IN NIGERIA, SUB SAHARAN AFRICA: A FEDERAL UNIVERSITY AS CASE STUDY

*Adeleye T. M.1 and Oladoye A. O.2

1Departmenmt of Microbiology, Federal University of Agriculture Abeokuta, P.M.B. 2240, Ogun State, Nigeria.

2Department of Forestry and Wildlife Management, Federal University of Agriculture, Abeokuta, P.M.B. 2240, Ogun State Nigeria.

*corresponding author: tolulopemodupeade@gmail.com: +234 (0) 803-820-5666

Online education also refers to e-learning or distance learning, is a system which engages and assists students to study in their own free time through the use of resources on the internet. Although the internet has become a major tool for a number of informal learning activities for youths, its potential as a tool for formal educational technological advancement in Nigerian universities is yet to be fully exploited and also enjoyed. On-line education was introduced into the Nigerian University system as the National Open University of Nigeria (NOUN) over 36 years ago but closed down some few months after it was resuscitated 18 years ago. However, it is still so much in its infancy in Nigerian Universities as result of factors such as insufficient economic funding and hostility as regards the public perception and acceptance of on-line education. A number of Federal Universities including the Federal University of Agriculture Abeokuta (FUNAAB) run Part-Time Degree programs (PTDP) which are designed to meet the academic needs of candidates who cannot be accommodated in the full-time programs of the University and also provide an opportunity for workers to acquire tertiary education without traveling long distances for similar programs. FUNAAB runs in its Part-time Degree Program, courses in Science, Technology, Engineering and Mathematics just as it is being run in the Full-Time Program. However, there are a number of challenges causing irregularities in the calendar and curricular of the Part-Time Program. These irregularities discourage admitted students leading to abandonment of the program, poor performance in studies, poor attitude to learning and ultimately admitted students tend to discourage other aspiring students who wish to enroll in the Part-time studies. The Federal University of Agriculture of Abeokuta operates an excellent ICT center responsible for the integrity, maintenance and efficiency of the Campus Internet Network among a number of other services on and off-campus. The center also deploys multimedia systems for seminars, conferences, workshops and lectures. The part-time degree program can engage the facilities of this center beyond its present use of processing of examination results, students' registration and study program. An efficient e-learning platform can be developed with collaborative efforts of the staff of the ICT center and the academic staff and patterned after systems successfully operated in other African Universities. This study examines from the students' perspective, the potential benefits of introducing blending the on-

pine education with PTDP so as to develop it into a more qualitative, attractive and enjoyable program for students. Having more enrolment will increase renumeration of the academic staff participating in the teaching of the program more members of the academic staff are likely to be involved and as result workload on individual lecturer is reduced while improving the quality of teaching and learning.

Key words: Online education; Part-time Degree Programs; Universities in Nigeria; Impact on Student

1.0. INTRODUCTION.

Online education also referred to as e-learning or distance learning, is a system which engages and assists students to study in their own free time through the use of resources on the internet (Kotoua *et al.,* 2015). UNESCO in 2002 describes distance learning as any form of educatioanl process in which most of the communication between teachers and learners is through an artificial medium, either electronic or in print (Onasanya *et al.,* 2013). Other authors have defined it as an educational approach structured to reach the learners in comforts zone such as their homes, offices or any place of residence where learning resources are provided for them without attending formal classes in person. This platform creates opportunities for a life-long learning, irrespective of the place or time they want to study. In addition, distance education or e-laerning is a system characterized by physical separation between the teacher and the learner in which instruction is delivered through a variety of media (Ajadi, Salawu & Adeoye, 2008; Onasanya et al., 2013). E-learning have been particularly defined as the major use of electronic technology to deliver education and training applications, monitor learners' performance and document their progress along the way (Salawudeen, 2010). From general perspective, e-learning is a network technology-based mode of instruction that solely depends on computer and other ICTs, to deliver instruction and provide access to information resources (Organization for Economics Corporation and Development [OECD], 2005). While traditional formal education takes place under the guidance of others, e-learning or online education provides formal platform for learners to also educate themselves (Fayomi *et al*., 2015).

Mooneyhan (2012) compare the traditional teaching method and Teaching Method using the Internet as an instructional supplement and found no significant difference between the pre-test and posttest scores of both groups. Another study by Kolowich (2009), further recommends that a blended learning/teaching can produce better outcomes than E-learning or face-to-face mode of instructions. Blended learning refers to the combination of face-to-face and technology-enabled learning environments (Gerbic, 2011; Graham, 2013). This concept has been around for a long time, but was not firmly established as a terminology until around the beginning of the 21st century (Amosa *et al.*, 2017). It involves a combination of conventional face-to-face and online technology-based learning (Wang, 2011). This system integrates the strengths of each learning

environment by providing learners with flexible access to more varieties of support materials that will enable critical thinking and reflection which has a great potential to improve learning outcomes (Garrison & Kanuka, 2004). It involves mixing various event-based activities such as face-to-face classroom, live e-learning, self-paced learning, synchronous online conference and training, or asynchronous self-pace learning (Graham, 2013). There is a growing body of evidence that suggests that blended learning can also increase student engagement and satisfaction (Smythe, 2012).

Nevertheless, any experience that has formative effects on the way any individual thinks, feels, or acts may be considered educational (Fayomi et al., 2015). Irrespective of methods adopted, learners' creativity, resourcefulness and imaginative abilities are continuously sharpened as they go through the various educational programs available for them (Whawo, 1997). Although the internet has become a major tool for a number of informal learning activities for youths, its potential as a tool for formal educational technological advancement in Nigerian universities is yet to be fully exploited and also enjoyed. Statistics have shown Nigeria as the leading country in sub Saharan Africa with the largest number of internet users (O'Birba, 2012; Alemna, 1999), but the online education is still so much in its infancy in Nigerian Universities.

Since Nigeria's independence, the government of the country continues to demonstrate her commitment to education as essential for development, and as a right for her citizens. Recognizing the growing demand for education by the people which could not be met by the traditional means of face to face classroom instructional delivery, the Nigerian government, introduced the online University, introduced as the National Open University of Nigeria called, NOUN. It did appear the way forward to embrace open and distance education. Thus, by an Act of the National Assembly, the National Open University of Nigeria (NOUN) was established in July 1983 (36 years ago) under the civilian regime of the government, as the first distance learning tertiary institution in Nigeria when it became crystal clear to the then Federal Government that the ever growing demand for education by her people cannot be met by the traditional means of face-to-face classroom instructional delivery (Adu *et al*, 2013).

In 1984, the military government overthrew the then civilian government and the Act that established the Open University (Ifeanyi, 2014). Nevertheless, the compelling reasons which informed the earlier establishment of the university and the need to fill in the educational gap thus created by the government clamped down on the few study centers of many conventional universities all over the country (Fayomi *et al.,* 2015). Then there arose the need to take advantage of emerging developments in the field of Information Communication Technologies (ICTs) which revolutionalized the techniques and methods of instructional deliveries in the distance learning programs leading to the reactivation of the suspended NOUN Act of 1983 in 2002 paving way for the resuscitation of the NOUN (Ifeanyi, 2014).

NOUN, a federal government – owned university, is the first dedicated University in Nigeria to introduce education through online learning mode. The system however, does not completely

provide students with some important informal experiences such as belonging to a student body, participation in social activities, excursions or field trips, which all aid learning as in the case of the traditional universities. The challenges ravaging the socio-economic situation of the country such as corrupt practices and poverty sometimes takes its toll on the program of the NOUN leading to prolonged years of study which consequently result in final voluntary withdrawal from the program by the student (Kotoua *et al.,* 2015). There have been reports that suggest that NOUN management should get to know how the students and graduates perceive the learning outcome in view of employability of such graduates in Nigerian labor market today. Consequently there is need to strategically implement appropriate policies which will address any hostile public opinions held by a number of Nigerians arising from doubts in individuals, if an actual education is taking place through the distance learning program. These opinions are affecting employability of NOUN graduates (Fayomi et al., 2015) and as a result students of such programs are not only seen as inferior but also consider themselves and act as inferior to their counterparts who passed through the traditional university system.

There is an increase in the demand for undergraduate degree programs in Nigerian universities which the regulatory body for the operation of Universities in the country (National Universities Commission -NUC) has been unable to satisfy and as a result greater number of applications is turned down every year (Imakpokpomwan and Olubor, 2018). A number of Federal Universities in Nigeria run a part-time degree awarding program for various courses. Admission of students into the program is less stringent than for the full-time program.

2.0. BACKGROUND OF THE STUDY.
2.1.1 The nature of Part-time Degree Program in FUNAAB

At the Federal University of Agriculture Abeokuta (FUNAAB), the part-time study is a non-residential program, with lectures holding on weekends at the Main Campus of the University. The program runs for one (1) year above the number of years of the full-time program. The program is structured for mature individuals whose busy schedules due to work or family demands, does not provide the opportunity for a full-time study. However, a number of younger ones who have not been able to secure a university admission into the full-time program, after several attempts have been enrolled. Students who have also had some form of tertiary education such as a diploma, but still desire the university degree, have also been enrolled in the Universities' part-time degree programs. Nevertheless, the structure of an on-line education is such that can accommodate these categories of students.

The part-time program, in FUNAAB a non-residential one, established in the year 2007 with lectures holding at the Main campus of the University. It runs for one year over and above the number of years for the regular program. The program is designed to meet the academic needs of candidates who cannot be accommodated in the full-time program of the University. It also provides an opportunity for workers to acquire tertiary education without traveling long distances for similar programs. Students are offered admission into 100l, 200l, and 300l depending on their

entry qualifications. The Unit has a Management team, led by the Head of Program, supported by five Assistant Heads of Program who represent each college whose courses are offered in the program and administrative support staff.

The Part-Time Degree Program is department based and accommodated in all of the Science, Technology, Engineering and Mathematics (STEM) courses taught in its colleges which include: College of agricultural management and rural development; College of animal science and livestock production; College of engineering; College of environmental resources management; College of biosciences; College of physical sciences; College of plant science and crop production; College of veterinary medicine; College of food science and human ecology.

Entry requirements to Part-time Degree Program are essentially the same for regular degree programs in the University and as such equal demands on quality of teaching and learning as in the case of the full-time program is made from both lecturers and students respectively. However, lecturers are unable to meet up with these demands as a result of heavy work load and schedules already experienced in the full-time program. While most lecturers use the days of the end of the week (Friday- Sunday) to either rest, engage in other extra-curricular activities or travel to meet their families, the Part-time students are expected to be attended to at such times. This conflict puts a strain on the level of dedication given to teaching part-time students. Unlike a typical distance learning/ open- education/ e-learning program, the Part-time program provides opportunity for students to engage in face-to-face interactions with their lecturers at with each other. This opportunity is not enjoyed to the fullest due to fatigue from the week's obligations experienced by both the students and lecturers. Hence both teaching and learning suffers.

Another drawback in the quality of education of the part-time program is irregularities in curriculum of studies which do change along with what is obtained in the full-time studies as necessitated by NUC, the regulatory body for University Education in Nigeria. As a result of the schedule of the part-time studies, students information required to make adjustment to most changes are not readily supplied as at when the teaching and non-teaching staff who are actively involved in co-ordination and management are usually not physically present on campus. This by implication creates confusion and causes the program to progress at a much slower pace than planned. The unexpected, slow pace of the program and lack of access to information and university resources discourages most students from completing the program and also discouraging other prospective students from enrolling.

Lecturers also do not get encouraging responses and attitudes from the students as it is in the full-time studies and so very few are interested in continuing to teach in the Part-time program. As a result, the few who are involved are be-labored. This trend over the years has led to drop in the number of enrollments. In recent times however, the University is making effort to resuscitate the program and give it the attention and resources required.

2.2. Potentials of ICT in Developing a Blended Learning in FUNNAB's Part-Time Degree Program

The Information and Communication Technology Resource Centre (ICTREC) is responsible for the Universities Internet network and also other on and off-campus services. The Federal University of Agriculture Abeokuta operates an excellent ICT center established for: the integrity, maintenance and efficiency of the Campus Network; provision of Internet Services on campus; maintenance of all servers connected to the network and security management; maintenance of network infrastructures i.e. optic fibers, wireless access points, Ethernet cables, switches, routers e.t.c. in all buildings on Campus; the maintenance of the VSAT farm; CISCO administration. The scope of services rendered by the ICTREC makes it a potential training center for ICT skills. Adeyinka (2013) reports the need for most students to be trained on how to improve their skills and teach the novices among them. Moreover, there is a need to offer training to various user groups (students, teachers, administrators, etc.).

The center operates an Open User which provides direct computer access to members of staff and registered students at appropriate charge per time unit. This also serves as a platform for On-line Registration for students. The center equally has a Management Information System for the management of staff and students' records, processing of ID Cards, supply of information to Management and other authorized users in desired formats while working with Timetable and Examination Committee (TIMTEC) to generate examination and lecture time table and attending to clients' complaints and enquiries. As a center, the ICTREC operates as a Training Centre Responsible for organizing computer training programs for staff and students, offering professional certification courses in CISCO training. The Project Development Section of the center engages in the development, management and updating of the university website and the development and management of in-house applications like Result Processing Application, Postgraduate studies and university admission examination portals. Maintenance/Multimedia Section sees to trouble shooting and maintenance of computer systems and accessories within the University community such as routine maintenance of Central Computer Laboratory, ICTREC Training Centers and Computer Laboratories. Other services of the ICTREC include deploying multimedia systems for seminars, conferences, workshops and lectures.

This array of services positions the University's ICT center (ICTREC) as a platform for improving the Institution's Part-time Degree Program by blending in e-learning into the structure of the program. One of the major challenges of teaching PTDP in FUNAAB is the inability of students to cope with the volume of topics being taught within the limited face-to-face contact with the lecturers Ablend of e-learning into the part-time program affords lecturers opportunity to upload lecture notes and also include audio-visuals and videos which will be appealing to students facilitate learning even when they are fatigued. By so doing, the students have an idea and possible interest in the topics ahead of the face-to-face contact with their lecturers. Hence students can come to class with questions on unclear or ambiguous aspects of the teaching which can be further expantiated by the course lecturers. This will also reduce cost of printing of papers

by both lecturers and students. In addition, information stored in this form on the internet can always be accessed and not lost as if it were on a printed form. As reported by Omotoso (2015), ICT will obviously make the culture of learning to shift from that of students sitting passively in a classroom where only attendance matters, to that of pro-active reading, encoding and decoding anytime, anywhere improving the quality and volume of teaching within the given period of contact hours. The students also have the opportunity to read ahead of the class and have more understanding when eventually in the classroom face-to-face with the lecturer. This will most likely improve performance of students which will encourage both students and lecturers and invariably increase the numbers of participating lecturers and students' enrollments. Other ICT tools such as video conferencing and e-lectures become can be adopted to foster the interrelationship between students, their teachers and friends. Imakpokpomwan and Olubor (2018) reported the need for learning aids and support in a University's Part-Time Degree Program.

Strengthening and deploying the services of the FUNAAB's Information Communication and Technology Resource Centre (ICTREC) can help circumvent most if not all of the challenges the Part-time Program currently encounters. As highlighted by Librero (2006), there is the need for conventional universities and other educational institutions to use ICT to achieve a blend in the learning environments between the traditional face–to-face classroom and the online education. Distance education providers should strive to use quality and reliable ICT hardware and software to make on-line education accessible and available for every time of the day (Omotoso, 2015). It is therefore important that these systems must be supported by highly skilled individuals, armed with the knowledge and skills they need to ensure hardware and software run smoothly. As also observed by Westbrook (2001) the introduction of ICT in education results in changes in the core areas of education such as curriculum, role of teachers and students, organizational structure and, learning environment, which are the major points of challenges of the Part-time Degree Program of most Nigerian Universities.

The part-time program experiences a number of challenges associated with updates on curriculum of study in various departments, students' course registration and collation of examination results. These challenges are however either absent or more readily resolved in the University's Full-time Degree Programme. In recent years however, the university administration has begun to deploy resources of the ICTREC to circumvent some of these challenges. For example, results are now being managed and stored electronically unlike the manual print form which used to be kept in paper files and folders. As a result, when any member of the unit or head of department handling results change offices or leaves the system, it becomes almost impossible to retrieve old examination results when needed. At present, this is no longer the case. Facilities and staff strength of the ICTREC are now involved while managing limited available resources in the examination result processing of the part-time degree program (PTDP). This practice agrees with the description of e-learning by Salawudeen (2010) that it can be used to monitor progress in learning as measured by performances in examinations.

Moreover, more can be achieved with further active involvement of the facilities and services of the FUNAAB ICTREC in the university's PTDP.

The University which is fundamentally a science school experiences poor enrollment of students (in terms of numbers) in its PTDP. This might be as a result of the global statistics that fewer students are interested in studying science at tertiary levels (OECD, 2008). There are also reports showing that those who do choose science courses at undergraduate levels are unsatisfied with their experiences (DeHaan, 2005) which in-turn leads to high drop-out rates (Ulriksen, Madsen & Holmegaard, 2010) and fewer science graduates. Nevertheless, a growing body of evidence suggests that blended learning can also increase student engagement and satisfaction (Smythe, 2012). Therefore, a blended learning approach in undergraduate science may help to increase recruitment and retain students such as those enrolled in FUNAAB'S PTDP.

This report presents findings from a survey of the knowledge of part-time students of Federal University of Agriculture Abeokuta (FUNAAB), Ogun State, Nigeria, on e-learning and its potential impact on the Part-time Degree Program.

3.0 METHODOLOGY

In this study the authors did a survey using self- survey using self- questionnaire administration for data collection. The study was conducted on FUNAAB's main campus and questionnaires were randomly self-administered by the authors to about 50 part-time students of which 37 were returned and completely filled. This number makes 74% response rate which can be regarded as a good representation of the total sampled observations. The study population consists of only the students. The research instrument consists of six main sections (A – F). Section A:demographic characteristics of respondents; section b: type of frequently used web-based applications [word processing (e.g., ms word), spreadsheet (e.g., ms excel), e-mail, search engine (e.g., google, yahoo), google drive, forums (e.g., pantip.com), text chat (e.g., line), voice chat (e.g., google hangout), video chat (e.g., skype), computer games, web video (e.g., youtube), photo-focused web (e.g., instagram), blog (e.g., blogger, blogspot), wikis (e.g., wikipedia, wikispace), social media (e.g., facebook, twitter)]; Section C: knowledge, attitudes and practices of students towards online education; Section D: Perception of students towards blended education design; Section E: factors influencing acceptability of online education and Section F: Ease of use between types of learning designs. The variables were measured on five point scale (YES, NO or I DO NOT KNOW).

3.1 RESULTS AND DISCUSSION.

The results from the demographic characteristics of respondents showed the male population to be more (54.1%) being a little over the average size sampled. Majority of the respondents were between ages 22- 34 (78.4%). About 54.1% already had a diploma certificate while 37.8% had a B.Sc. degree before enrollment for the PTDP. However, none of the respondents had been exposed to e-learning. Their sources of earlier degrees/qualifications obtained were through the

traditional face-to face teaching. While most of the respondents (94.6%) work in urban areas, 64.9% are between 0-5years into their jobs. This results shows that while on-line learning is new to all, majority are neither are not too old and not yet in managerial positions at work (based on their years of working experience) and have a form of formal educations. These demographic characteristics shows that these categories of students are available to be trained and acquainted with the skills needed for effective e-learning if blended into their program.

Data collected in section B shows that well over 70% of the students are familiar with the use of most of the use of web-based applications highlighted in the study except for the specialized ones for which the ICTREC of FUNAAB can be a training center. It is interesting to note that all (100%) respondents have email addresses. The relatively high knowledge of respondents to some web applications as seen is this study could be as linked to their previous exposure to formal education as seen in the majority of the population studied or the nature of their jobs which are largely located in the urban environment as seen in the information presented.

Data collated in Section C showed that a good number of respondents (64.9%) believe that e-learning is more qualitative than face-to-face contact. This further indicates the possibility of a successful trial of a blended learning as none of them had been exposed to e-learning before and yet about a half are positive of getting more quality from the method. This indicates a level of optimism in the students which will be contributive to achieving success. Further from this section, 81.1% of respondents showed willingness to dedicate significant number of hours per week in-spite of their work schedule to participate in on-line learning and interactions with their lecturers and colleagues.

All variables measured in section D on the perception of a blended program shows a positive attitude of the students and their interest in the blended approach to teaching. While majority agreed that course content will be elaborate (78.4%) and that course materials will be of higher quality (67.6%), it is noteworthy however that 73.0% agreed to possibility of failing or dropping out if there is complete absence of face-to-face contact. This reaction further confirms the reasons for voluntary withdrawal of students from on-line degree programs in Nigerian such as The National Open University. The data obtained from this section also agrees with the report of Kououa et. al., (2015), that majority of students feels more positive about traditional face-to-face system of education than a purely on-line system. This feeling is because students think that computer technology cannot replace personal relationship which is shared between them, their lecturers and friends. A blended learning approach is still seen as a better alternative.

Data obtained from respondents under Section E as represented in questions 47 – 62 in Table 1, regarding the factors influencing the acceptability of on-line education by the students showed that the majority of students are interested in using the e-learning platform in their educational programs. 78.3% of respondents agreed that they want to see e-learning established in the PTDP of their university (FUNAAB). While 83.7% showed interest in e-learning, a large number (64.8%) do not believe that those getting education through e-learning platforms are better than they are.

Table 1. FACTORS INFLUENCING ACCEPTABILITY OF ONLINE EDUCATION

S/N	STATEMENT	SA	A	U	SD	D
47	Online education would help me improve my academic performance.	49.5	35.1	8.1	5.4	5.4
48	Online education would allow me to do more work in less time.	40.5	37.8	8.1	10.8	2.7
49	Online education would make it easier to do my school work.	37.8	37.8	10.8	5.4	8.1
50	Online education will be useful for my career and further my skills and knowledge.	37.8	43.2	8.1	2.7	8.1
51	Learning to use E-learning would be easy for me.	37.8	43.2	18.9	-	-
52	I would find it easy to use E-learning without much help.	32.4	45.9	13.5	5.4	2.7
53	It would be easy for me to become skillful at using E-learning.	48.6	37.8	13.5	-	-
54	I would find E-learning easy to use.	40.5	40.5	10.8	5.4	2.7
55	I think online education is a good idea for students.	29.7	45.9	13.5	2.7	8.1
56	I would like to see online learning established in the part-time program of my university.	35.1	43.2	8.1	10.8	2.7
57	I am interested in using E-learning.	35.1	48.6	13.5	2.7	-
58	I think that people who engage in online education are getting better education than those who do not.	37.8	27.0	10.8	18.9	5.4
59	Using E-learning is good for my reputation.	18.9	51.4	18.2	2.7	10.8
60	Online education would allow me to learn what I want, when I want.	35.1	40.5	16.2	5.4	2.7
61	I feel that Online education is at least equal quality to classroom learning.	21.6	37.8	13.5	8.1	16.2
62	I feel that Online education will give same quality of knowledge and skills as face to face learning.	18.9	51.4	16.2	2.7	10.8

Section F was structured to compare the ease of use of online education and face-to-face learning by students. Some inconsistencies were observed as follows: 73.0% prefers searching for study materials by themselves, 78.4% agrees that online learning is flexible and suitable for an adult, 73.0% can successfully complete a course on-line without face-to-face contact sessions. As regards which form of learning is preferred while equal number of people (45.9%) want either e-learning or face-to-face contact. This result is suggestive of a need of a blended learning system which affords the students an opportunity for both the face-to-face contact and online learning sessions.

5.0 CHALLENGES TO BLENDED LEARNING IN FUNAAB'S PTDP

The major challenge to be encountered is the inadequacy of available resources in meeting up with the built capacity of the university system and students' enrollment in the PTDP. A well-equipped and maintained ICT centre will function to ensure the efficient and effective use of resources for all stages of the teaching and learning process beginning from accessing online lecture notes and participating in the e-interactions, to registration of courses, to managing elibrary materials, to manipulating and developing databases for students' use (Omotoso et. al., 2015).

6.0 CONCLUSION

If properly implemented, the blended learning is a promising alternative approach compared to the conventional and e-learning methods and can improve learning outcomes (Amosa et. al., 2012), The Federal University of Agriculture Abeokuta, like thousands of its counterparts in

Sub-Saharan Africa has already built a unique system of technologies for its own ICT needs. However, much more can be achieved in education and the university training programs for students and also members of staff is a more ICT resources are blended in. If there can be external support of funds from the government, professional bodies, non-profit organizations, companies or individuals for such universities an effective blend of ICT into Part-time degree programs can provide effective and qualitative e-learning in Science Technology Engineering and Mathematics for all that are interested irrespective of age, or socio-economic status.

REFERENCES

Adeyinka, A. (2013). Current problems of educational development in Nigeria. Journal of negro education: 1-82.

Ajadi, T.O, Salawu, I.O & Adeoye, F.A. (2008). E-learning and distance Education in Nigeria, The Turkish Online Journal of Education Technology.7 (4):7.

Alemna, A. A. (1999). The impact of information Technology in Africa. Sage journals vol. 15.

Benson A. (2002) Using online learning to meet workforce demand: A case study of stakeholder influence. Quarterly Review of Distance Education, 3(4): 443−452.

Conrad D. (2002), Deep in the hearts of learners: Insights into the nature of online community. Journal of Distance Education 17(1): 1−19.

DeHaan, R.L. (2005). The Impending Revolution in Undergraduate Science Education. Journal of Science Education and Technology, 14(2), 253-269. doi:10.1007/s10956-005-4425-3

Ellis R. (2004) Down with boring e-learning! Interview with e-learning guru Dr. Michael W. Allen. Learning Circuits. http://www.astd.org/LC/2004/0704_allen.htm

Fayomi O. O., Adepoju, O. and Ayo, C. K. (2015). The Impacts of Online Education on the Educational Advancement in Nigeria: A Study of National Open University of Nigeria (NOUN). In: INTED 2015 International Conference, 2 - 4 March 2015, Madrid, Spain. http://eprints.covenantuniversity.edu.ng/id/eprint/4671.

Gambari, A. I., Shittu A. T., Ogunlade, O. O., Osunlade, O. R. (2017). Effectiveness Of Blended Learning and ELearning Modes of Instruction on the Performance of Undergraduates in Kwara State, Nigeria. Malaysian Online Journal of Educational Sciences,5(1): 25-36.

Iloanusi O.N. (2007). E-Learning: Its Implementation in Higher Institutions in Nigeria. Nigerian Journal of Technology, 26 (1): 47-58.

Ifeanyi P.A. (2014) NOUN Profile 2014. Lagos: Vice Chancellor's office, National Open University of Nigeria.

Imakpokpomwan M.I. and Olubor R.O. (2018). Location and Gender Analysis of Sandwich Admissions: A Case Study of Mid-Western Nigeria Universities. Journal of Education and Practice 9 (17): www.iiste.org

Kolowich, S. (2009). Sustainable hybrid: Blended learning, preliminary data indicate hybrid courses produce better outcomes.

Kotoua S., Ilkan M. and Kilic H. (2015). The Growing Of Online Education In Sub Saharan Africa: Case Study Ghana. Procedia - Social and Behavioral Sciences 191: 2406 – 2411..

Librero, F. Trends in e-learning of Interest to Educators. (2006). Paper presented in the National Conference of the Philippine e-learning society on 28-29 November, 2006. Diliman, Quezon City, Philippines.

Mooneyhan, A. (2012). Using the internet as a supplemental delivery method on University concepts of fitness Classes. International Journal on E-Learning, 11(2), 181-187

O'Birba, A. D. (2012). Internet adoption in Africa. Elsevier B.V: 463–472.

Organization for Economic Corporation and Development. (2005). E-learning in tertiary education: Where do we stand. Retrieved from http://www.oecdbookshop.org/display.asp on 12/04/2013.

Organization for Economic Corporation and Development OECD. (2008). Encouraging Student Interest in Science and Technology Studies. Paris, France: OECD Publishing. Retrieved from www.sourceoecd.org/education/9789264040694.

Ojo, O. D., Ogidan, Rotimi & Olakulehin, F. K. (2006). Cost Effectiveness of Open and Distance Learning In Nigeria : Responses From Focus Group Discussions. Online Journal of Distance

Learning Administration, Volume 4, 2. Omotoso, A.O., Lateef E.B., Amusa O.I. and Bello T.O. (2015). Information and Communication Technology Adoption and Use Among Students of a Nigerian University for Distance Learning. Library Philosophy and practice (e-journal). http://digitalcommons.unl.edu/libphilprac.

Onasanya, S. A., Nathaniel Samuel, Laleye, A. M. & Akingbemisilu, A. A. (2013). Distance Education and the Experience of Hidden Curriculum Using Mobile Phones in Nigeria. Journal of Frontiers of Education and Management. A publication of the Department of Educational Management, Adekunle Ajasin University, Akungba Akoko, 1(1), 2013, pp.114-124.

Salawudeen, O. S. (2010). E-learning technology. The Nigerian experience. Abuja: Roger Printing and Publishing Limited, Abuja

Ulriksen, L., Madsen, L.M., & Holmegaard, H.T. (2010). What do we know about explanations for drop out/opt out among young people from STM higher education programmes? Studies in Science Education, 46(2), 209-244. Retrieved from http://www.tandfonline.com/loi/rsse

UNESCO (2002). Open and Distance Learning: trends, policy and strategy consideration. Paris: UNESCO.

Westbrook, J. (2001). The Esloo design for the digital elementary and secondary education. In A. Loveless and V. Ellis (Eds.) ICT, Pedagogy, and the curriculum (55-70). London: Routledge Folmer, pp 23-64.

Whawo, D.D. (1997) An introduction to the study of education (2nd edition). Benin City: World of Books Publication.

Adeleye, Tolulope Modupeoluwa

Title: Potential impact of online education of part-time degree programme in Nigeria, Sub Saharan Africa: A federal University as case study.
Organisation: Federal University of Agriculture Abeokuta, Ogun State, Nigeria
Biography
I am a Lecturer in the Department of Microbiology with research interests in Biofuels, Biotechnology, Strain Improvement Technologies, Fermentation Technology and Enzymology, with experience at academic institutions teaching students from various social and cultural backgrounds.

I teach Microbial Genetics and Molecular Biology, Microbial Physiology and Biochemistry, Industrial Microbiology, Fermentation Techniques, Brewing Science, Food Microbiology and General Microbiology. and supervise research at both undergraduate and graduate classes. I currently coordinate the Part-time Degree Programme in my Department and also represent the department in the College Committee on Examination Results. I am passionate educator who creatively improvises available resources for effective learning.