Full Length Research Paper

Towards Improving Distance Education in Nigeria with Virtual Technology

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Technology has been a technique used in various disciplines and has been passing through various stages of development to improve upon the delivery of education to those who do not have the opportunity to attend traditional institutions or were impeded as a result of work. This study examined the existing method of delivering distance education by Nigerian universities to non-traditional students with the aim of enhancing the delivery methods with advanced technology which requires nontraditional students to be taught in real-time from remote locations. The data for the current mode of delivery for distance learning programs in Nigeria Universities were gathered from their respective web portals. Results revealed that the Universities that provide distance education used study centers, emails and campus classrooms for instructions. None of the universities employed a Virtual classroom, which require students and lecturers to interact in real time from their respective locations. The study described virtual technology and recommended that the universities should apply the real time technology with the aid of information technology helpdesks, so as to provide effective and efficient education from remote locations to learners as well as save time and costs to both the university authorities and the learners.

Keywords: distance education, technology, virtual classroom, study centers

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INTRODUCTION

Technology is a technique that is being applied in different sectors. Its application has evolved shifts in paradigms through innovations and promotion of the sectors, which include education in different parts of the world. Educational technology establishes array of tools that can be helpful in advancing learning towards exploring ideas and communicate meanings between learners and teachers. While some people have access to traditional institutions, some do not have due to finance, busy work schedule or location of preferred institutions. According to Jokar and Soozandehfar (2011), a distance education system is identified as the answer to the problems of people who don't have access to the traditional education system and are too busy to

participate in traditional classrooms. Teaster and Blieszner (1999) indicated that distance learning has been applied to many instructional methods; the advent of computer and its seemingly limitless possibilities coupled with subsequent refinements in technological world, have created a new avenue for delivering distance education. Phillips (2010) cited Campbell, Gibson, Hall and Richards (2008) that universities have harnessed the Internet as an educational and knowledge sharing medium used for distance education. However, the primary distinction of use of the technology is that the teacher and the learner are separated in space and time and such use will fill the gap of the time, space, cost and opportunities for those denied admissions as a result of capacity as well as working adults who were yearning for University education in Nigeria.

As technology transcends beyond one particular approach, there has been disparity in its use between developed and developing world. Gulati (2008) indicated that all developing nations have homogenous characteristics, which include social problems and they are designated as developing countries because of their lower rank in the United Development Program (UNDP) Human Development Index. There are widened gap in socio-economic systems, living standards and educational opportunities between developing and developed countries. Distance education is not a new idea because it evolved before the 20th century when printing press and mailing services were used to distribute information to people. Correspondence courses became more widespread in the 20th century and updated through innovations of new technologies that use telephone conferencing, radio, television, and later video to supplement the earlier mentioned methods. However, distance learning and its relationship to emerging technologies have both offered opportunities to the field of education in order to overcome access to university locations as well as reduction of education costs.

Nigeria is a developing country with a population of about 160 million people. Most of the people are poor except for few elites who can afford to send their children to traditional institutions. Boesler (2013) indicates that Nigeria had a population of 168 million in 2012 as compared to United States population of 313 million. Presently, the number of universities in Nigeria is not enough to accommodate eligible students who took the Joint Admission Matriculation Examination. The degree seeking candidates that could not be accommodated by existing traditional universities and working adults who wish to progress with university education, need to be provided with accredited degree programs remotely. Based on this inadequacy, the Federal Government of Nigeria established Open distance learning program to complement and offer distance learning.

Therefore, this paper examined the mode of delivering distance education in Nigeria to degree seeking students in order to provide advanced technology for real time instructions to the learners.

Objectives

- To determine the universities offering distance education in Nigeria.
- Identify the mode the universities use to deliver instructions to learners.
- Describe virtual technology for use in distance learning.

LITERATURE REVIEW

Some related works to this study were examined for proper understanding of the subject matter. MacLaughlin, Supernaw and Howard (2004) defined distance learning as a program in which enrolled students may receive part or all of their education at a geographic location different from the point of content organization and for which the final award (i.e., degree) is equivalent in standard and content to an award program completed on campus. Distance education has evolved over the years through different means. Jeffries (2002) explained that the history of distance education could be traced back to early 1700s in the form of correspondence education, but technology-based distance education could be linked to the introduction of audiovisual devices into schools in the early 1900s. He further asserted the innovations over time by using instructional media slides, motion pictures, radio, television, up to the use of emails and internet. Therefore, Meyer (2005) explained that, in view of satellite, interactive video, or the internet, they are different from a traditional education. As students and teachers are separated by some space or distance, there is a gap between lessons given and learning documented when it is not face to face. Schools use distance education to respond to students' needs for alternatives to the schedules and locations at which courses traditionally have been offered. The availability of new technologies including the Internet have spurred significant growth in the number and types of distance education programs schools offer (United States Department of Education)

Technology advancement with the use of email, internet, chat, discussion board, etc have strictly closed the gap between the missing face to face between learners and instructors as well as to fellow students, to the extent that the classroom has become virtual. It is pertinent to note that wide range of technology options to educate is based on challenges emanating with rapid technological change. The four major categories are:

- Voice - It is an instructional audio method which uses technologies that include telephone, audio conferencing and radio.

- Video - It is an instructional video tool that incorporates still images such as slides, moving images such as videotape, DVD, and film, as well as real time images, which combine with audio-conferencing.
- Data – It is an electronic method that uses computer. The computer sends and receives information electronically for teaching, through presentation, internet delivery, as well as track student records and progress.
- Print – It consists of various formats which are available for study guides, workbooks, textbooks and course syllabi.

According to United States Department of Education, the use of digital technologies for learning supports the education of adult learners and their teachers. They extend educational opportunities to reach new groups of students. The thoughtful integration of digital technologies into the traditional scheme of education and their use in developing new ways of learning is necessary to ensure students have the tools to thrive in a complex and rapidly changing technological society. Depending on the type of technology used, distance education can be described as either synchronous or asynchronous. MacLaughin et al. (2004) described asynchronous as methods that generally involve significant delays in time between message transmission and receipt (e.g. email, videocassette, discussion forums, etc), whereas, synchronous programs allow a live interaction between the instructor and students (e.g. audio conferencing, videoconferencing, web chats, etc). Samans (2003) states that email substitute the use of correspondence and it is free, however building on the advantages of the web, educators have been able to take correspondence courses one step further to form online education. He further said that the two types of technology education are Synchronous and Asynchronous, but most people envision asynchronous when they imagine online education as being improving upon every aspect of previous learning methods. It allows students to learn at will but must extremely have strong personal motivation and discipline. The synchronous education, reinforce the class experience by holding students to a schedule. A teacher can see whether or not a student is attending and participating in class or might as well needs help. He further said that the strengths make synchronous education the preferred technology method for institution programs that offered learning to students whose circumstances make traditional learning difficult.

Good communication and interaction between learners and instructors is essential for overall effectiveness in distance education. Yusuf (2004), states that conventional or distance education program is dependent on good communication for successful learning to take place. He indicated that an array of communications and technological tools are available for distance education program because the nature of the distance education program in Nigeria needs to provide opportunity for learners to interact with instructors and other learners. He further narrated the problems associated with instructional delivery at a distance in Nigeria to include the following:

- Lack of consistency in program/policy implementation.
- Problem of power (electricity).
- Poor communication technology and infrastructures.
- Poor postal (mailing) system
- Poor economic situations and its effect on middle level manpower.

There has been an improvement in the use of Information and Communication Technology (ICT) for instructional purposes, but it has been limited to email correspondence between instructors and learners in Nigeria. Aduwa-Ogiegbaen and Iyamu (2005) asserted that Nigeria needs to establish a virtual learning company to bring together the context of education and work place and as well address future challenges of the society. Hence, this study addressed the current method of providing distance learning and described the application and benefit of virtual technology to provide real-time instructions to non-traditional degree seeking students in Nigeria.

METHODOLOGY

The methodology involved the use of library resources and internet sources for literatures and data gathering. Visits were made to the websites and portals of all the 239 Federal, State and Private Universities and the National Open Learning Center in Nigeria to collect secondary data. Likewise, the website of the National University Commission was visited. The data gathered were entered into Microsoft Excel. These data were sorted and checked for errors. The respective distance education programs of the universities that offer distance education program were tabulated in order to determine their methods of distance education delivery. The data were screened for errors and relevant data were considered for the population of universities that offered distance education for possible statistical testing. A scientific test such as the Chi-Square test for goodness of fit could have been applied to determine any proportion or equality of the use of the categorical variable on whether virtual technology was used or not, for distance education in Nigeria. The descriptive statistics indicated that no virtual technology was used. Hence, the Chi-square goodness of fit could not be applied for the significant test for this study because it was constant because no virtual technology was used.

Table 1. Show the percentages of Universities in Nigeria presently offering distance Education

Nigerian Universities	Frequency	Percentage %
Offering Distance Education	13	5.4
Not offering Distance Education	226	94.5
Total	239	100

Table 2. Show the percentages by mode of instruction among the Universities offering distance Education in Nigeria

Mode of Instruction to Distance Learners	Frequency	Percentage %
Face-to-Face	9	69.2
Face-to-Face Study Center and Email (Multimedia)	4	30.7
Virtual Classroom	0	0
Total	13	100

FINDINGS

The results of the analyzed data are shown above:

Presently, there are 239 public and private universities in Nigeria. Table 1 above indicates the percentages of the Universities that currently offer distance education in Nigeria and those that are not currently offering distance education. As indicated above, approximately 5% of the universities offer distance education in Nigeria, while approximately 95% of the universities are not currently offering distance education.

Table 2 above indicates that approximately 69% of the universities that offered distance education to learners in Nigeria used Face-to-Face method for instruction. Invariably the students have to be in a classroom within the traditional university. The table also indicates that approximately 31% of the universities used study centers which require the physical presence of lecturers in conjunction with electronic media for sending reading materials and other instructions prior to meetings at the study centers. None of the institutions use virtual classrooms for learning and instructions in real-time.

DISCUSSION

Based on the result shown and personal observation, the attendance by distance education students is scheduled ahead for weekends and they are expected to attend classes for Face to Face instructions. The use of computer technology for real-time education was not used. In essence, virtual classroom which can allow interaction in real-time, including on-line chat, etc are lacking but they relied on emails through commercial servers, such as yahoo, hotmail, Gmail, etc.

As a result of findings, the level of technology is at lower ebb. The distance education delivery system appears similar to traditional education because distance learners still need to attend classes irrespective of their places of residence and work.

A Virtual classroom technology is an advanced technology used in an environment, which is different from the traditional classroom. It is located where a learner and his or her computer are present, but distant from the university campus. It entails tools such as Skype, Webex, Adobe Connect that are designed to connect remotely and interact synchronously towards supporting educational goals outside the traditional classroom. In a virtual classroom, the teacher and students logged into the learning environment in real time. This learning environment can be accessed through the university portal or the use of software, which requires a downloadable executable file. According to Rouse (2010), Virtual classroom software applications often employ multiple synchronous technologies, such as web conferencing, video conferencing, live streaming, and web-based VoIP to provide remote students with the ability to collaborate in real time. To enhance the educational process, the applications can as well provide students with asynchronous communication tools, such as message boards and chat capabilities. Ferriman (2013) expressed that a virtual classroom is an online classroom that allows participants to communicate with each other, view videos or presentations, interact with other participants and engage with resources in work groups. However, the features for designing and delivery classes to learners in the virtual classroom include the use of the following:

Use of audio and video communication

This enables the instructor or lecturer and learners to stream in real time through audio and video with the aid of the computer and web camera connected remotely from the university system. All participants can visualize the instructor who leads the classroom from their system through the web camera. The technology allows participants to chat and interact during the classes.

Use of classroom tools

In order to imitate traditional classroom blackboard, the technology allows the instructors to use whiteboard to draw sketches, graphs, write notes and perform mathematical calculations in real time while learners are in class. The class can be their homes or any other locations.

The lecturer uses the polling tools to ask questions from students in the class and as well get immediate responses from the students. The students while in class can signify with the tool to ask questions. Other students and the lecturer would be aware that such student wanted to ask a question. The lecturer can use the tool to form students into groups and place them in different breakout rooms and instruct or interact with each group separately. The formation could be for the purpose of group assignments or for personalized teaching. The students can also interact with themselves while the lecturer moderates the group separately by moving from one breakout room to another. There is opportunity for participants to use the tool to indicate laugh or applaud for any interesting comments.

The text chatting tool allows the lecturer to chat with students individually or as a group. There is no restriction to language of instruction. Hence the chat can be based on language of understanding between the students and the lecturer.

File Sharing and Desktop Monitor

The lecturer controls the online platform and can as well transfer control to students when class is in progress. Therefore, the virtual technology allows students to have access to the personal files of the lecturer shown on the desktop when class is in session. The lecturer share files such as Word documents, Excel, Power Point, PDF files, etc. for the benefit of the class and presentation purposes. The lecturer can as well allow a student to share his/her desktop for presentation or other benefits to class members so that they can view and peruse.

CONCLUSIONS

Advance Technology will improve the efficiency of the distance education in Nigerian universities that operates distance learning program. It will allow interactions between distant students and their instructors without any continuous need to travel to the study centers or campuses of the universities. It will enhance the skills and networking of the students using computer application. In addition, it will reduce the overall cost to the students and university administration because they will spend less on staff, eliminate provision of study centers or classrooms as well as parking facilities to learners and lecturers.

The respective universities offering distance education can allow students through its web portal gain access to virtual classrooms for a group meeting, assignments and recording of past lectures, most especially to those who missed a previous class. Furthermore, they can use chats, emails and blackboards to facilitate discussions at any time of pre-arranged date and time between themselves and the instructors. The print materials that could be distributed by instructors during classes would be eliminated. The bottom line is that the number of intending students who were unable to attend universities due to finance, inadequate number of facilities to accommodate them and inability to leave their current work for school will have opportunities to attend universities from remote locations.

For further study, the access, provision and attainment of software and file provision for virtual learning by learners and universities can be looked into in Nigeria.

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