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Abstract

The exponential population increase in the Country is not without consequential effect on secondary school leavers jostling for limited admission space in Nigerian institutions of higher learning. Every academic year, the Joint Admission and Matriculation Board (JAMB), rolls out frightening number of candidates desiring to enter Nigerian universities. These universities have limited resources to admit up to fifty percent of the candidates. The result is frustrated secondary school leavers who continue to apply yearly for admission. Consequently, examination malpractice becomes the norm. Measures were taken to ameliorate the problem including sandwich, continuing and distance education programmes. These modes of education are not without problems including infrastructural, manpower, and geographical location etc. Thus, the advancement in technology which heralded e-learning seems to be the panacea to the unrelenting effort to accommodate the increasing desire for higher education by Nigerians. The paper sought to present issues involved in the adoption of e-learning education platform aimed at leveraging the above problems. It explores different levels of e-learning adoption, issues involved, the benefits and its prospect towards solving the population explosion problem in our education system.

Education is an age long activity; a man's effort to justify himself as an intelligent and social being. Inert and acquired knowledge are transferred from one person to another in one form of teaching or the other. Before the advent of colonial masters which brought about formal education, informal tutelage was in place at various levels. Experience shows that nuclear and extended families, kindred, villages and towns were engaged in one form of informal education or the other. Formal education brought with it organized schooling system with its attending pedagogical set up. Not only that a face to face relationship exists between a teacher and a group of learners but a learner is expected to move from low to higher level of educational progression. Education at these levels is not isolated from developmental change. Changes in the global community marked with agricultural, industrial and information age bring about pedagogical changes in education. However, pedagogical shift is not an issue of fashion but an attempt to obviate the problems which could not be solved by the preceding mode some which include increase in enrollment (National Bureau of Statistics 2008), continuous increase in number candidates waiting for admission into higher education (Mamah, 2010), poor learning resulting from large classes, management and affective factors (Aborishade, 2009) as well as accessibility problems (Rwagasana, 2009).
In the view of the foregoing, e-learning which is associated with information age is not only perceived as a new education pedagogy but an effort to resolve problems associated with higher education in Nigeria one of which is the continuous struggle for limited admission spaces as well as other problems associated with increasing student population. The paper therefore sought to present some of the challenges in Nigerian higher education, the various platforms of learning, the issues involved in e-learning, the various ways it can benefit higher education in Nigeria and the bottlenecks to optimizing e-learning platforms in Nigeria.

Challenges in Nigerian Higher Education

The increase in pursuance of university education in Nigeria can be understood. First, Nigeria is the most populous country in Africa with a population of 151.2 million (World Bank 2008). Secondly, the increase in the awareness of the importance of education and consequential increase in education enrollment as indicated by the large number of secondary schools (14,829) gives impetus to higher education candidates’ enrollment (National Bureau of Statistics 2008). Finally, the mad rush for university certificate as a basic requirement for employment opportunities heightens the unrelenting struggle for university admission. The result is ever increasing secondary school leavers jostling for limited admission space and increase in students population in Nigerian institutions of higher learning especially universities. Thus, Mamah (2010) quoted Ojerinde as saying that unless access to tertiary institutions is increased, “We will continue to have this whole lot of people [university examination candidates] waiting endlessly for admission”. Unfortunately, the struggle for a place in Nigerian universities will continue to intensify as only a limited number that passed will be accommodated. For example; the Deputy Registrar in charge of Admission (2010/2011) in Nnamdi Azikiwe University Awka informed that out of the 36,000 candidates who passed the Joint Matriculation Board Examination for placement in Nnamdi Azikiwe University Awka, only 4,873 of them were admitted while the rest will return to the pool of past years’ frustrated candidates.

Universities are constrained from admitting candidates who met their entry requirements due to insufficiency in staff and infrastructure, poorly equipped laboratories and high cost of information materials, poor physical and learning facilities (Fougouagnigni, 2009). Apart from restrictions in admission engendered by the above factors, teaching and learning in universities are faced with many challenges which evolving education pedagogy is expected to address. These challenges include:

1. The norm of large classes in many first year courses with its attending student diversity from different socio-economic backgrounds and languages (Bezuidenhout, 2009);
2. Poor learning in large classes as a result of pedagogy, management and affective factors (Aborishade, 2009); and
3. High cost of school fees and inaccessibility of university education to majority of the population (Rwagasana, 2009) including working class and rural dwellers.

There is no gainsaying that the challenges have been a source of worry to government, university management and individual stakeholders. Part of the efforts to solve these problems in addition to adopting the global community approach, is the adoption of different learning models.

Learning Models as Practised in Nigeria

Formal education learning models have undergone series of metamorphosis, a reflection of environmental and socio-economic changes as well as the psychological outlook of the learner. There is a paradigm shift from the face to face to the distance model of learning. Brown (2010) noted that in the university, the face to face is a tried and tested conventional classroom teaching. The model has been diversified to obviate the problem of limited admission space and working class people as well as rural dwellers. This classroom teaching and learning is achieved by using evening programmes such as sandwich and continuing education. Though, the programmes strive to address partially problems of class group and rural dwellers, it is doubtful if the changing needs of the ‘Net generation’ and ‘Digital natives’ (Tapscott, 1998, 2008) are met. Furthermore, the problem of large class environment part of which is difficulty
in establishing physical social presence continues to persist.

The distance education model is defined by Willis (1993. p.56) as a type of education “when a teacher and student(s) are separated by physical distance and technology (i.e. voice, video, data and print). It is used to bridge the instructional gap". In this case the student is not required to attend campus. Correspondence courses are an earlier type of distance learning where postal services were employed to exchange materials (Brown, 2010). Many scholars acquired their degrees through this type of learning. This mode was faulted as it was directed to reading and writing with very little engagement between tutor and students and no contact among students. Nwaerondu and Thompson (1987) noted that radio and television were used in Mexico, Mali and Thailand for literacy teaching and Mathematics respectively. Radio and television are also used in Nigeria( Example the ‘Telematics’ training by ABS TV) in most cases to consolidate learning outcome and offer deprived students’ equal opportunity of acquiring same knowledge and skills as their counterparts. Though correspondence courses and radio/ television models provide a wider audience opportunity of learning while beating space and in the former give opportunity for learning at ones own pace, they are yet to achieve interactivity. They are also time bound. Ultimately, the face to face model, the correspondence and the radio/ television mode of distance learning are all teacher centered. In other words, the teacher plays the piper and thus detects the tune.

Interactive Distance Learning: E-Learning

One of the most significant changes in the field of education in this information age is the paradigm shift from teacher-centered to learner-centered education (Lee , Yoon & Lee 2009, p.19). This is the 21st century distance learning in which “modern technology and the internet are used to create and deliver an exciting and interactive virtual classroom. Students are able to engage online with high quality teaching and learning materials incorporating a high level of interactivity”. This model of distance learning is termed e-learning. E-learning widely used in education since the mid 1990’s is defined by Engelbrecht (2005) as the delivery of teaching materials via electronic media such as internet, intranets, extranets, satellite broadcast, audio and video tape, interactive TV and CD-ROM. It utilizes web-based communication, collaboration, knowledge transfer and training to add values to the individuals and the organizations (Kelly & Bauer, 2004). This learning model utilizes the opportunities offered by web 2.0 to enhance learning (Secker,2010). These opportunities include:

- Development of social networks;
- Content creation by users rather than an organization;
- Development of users’ profile;
- Use of folksonomies or tag to attach keywords created by users to aid retrieval.

Le and Yoon (2009) observed that major characteristic of e-learning, is that it utilizes web based communication, collaborative, multimedia knowledge and supports active learning without time and space barriers.

Issues in E-Learning

Effective adoption of e-learning in Nigeria to alleviate the challenges associated with Nigeri university education system demands the identification of issues in e-learning. These issues include the actors, the content, the technology, delivery mode/time of delivery as well as approaches.

Actors: Granted that e-learning involves the learning content, providers, families, friends, colleagues, the using institutions with its financial body, the major actors in e-learning are the teachers and the learners. The learners are given opportunity to be the learners they want to be. These learners in the developed world are familiar with computing devices and digital networks as well as skills needed for e-learning. However developing world, students need the above skills to be motivated, self-directed and as organized face the new model (Brennan2003). They need time management, reading comprehension and writing skills. They should be able to manage their learning space with reference to teachers, learning institutions, content etc. The teachers as facilitators of learning (Vogel & Klassa 2001) have peer evaluation responsibility. The work teachers has changed because of one to interaction of feedback required in e-learn (Palmieri & Cashion 2002, Brennan 20
Apart from the pedagogical skills, Palmieri and Cashion (2002) emphasized the need for teachers to develop skills in instructional and technical designs. E-learning teachers as reiterated by Choy, Mcnickle and Clayton (2002) must have understanding of students' expectations in the areas of capacities and resources.

Content: Cisse (2009) identified four types of e-learning contents: open contents, commercial contents, manual/indigenous contents (locally generated contents) and textbooks. The open content is in addition to the other free content developed by users often not always according to Seeker (2010) using web 2.0 tools such as blogs, wikis, YouTube, social bookmarking and various social media tools. Commercial contents by extension will involve cloud computing. Manual/indigenous contents are designed by teachers while textbooks and other resources are often presented as readings and links.

Technology: Technology for e-learning is the product of computer hardware and software; and communication facilities. The software include the e-learning platforms such as module, blackboard, Sakai and WebCT (Jones and Sclater, 2010), web 2.0 tools- blogs, wikis, YouTube, social bookmarking etc. Thuo (2009) classified the needed technology as:

Hardware: The equipment which includes electronics made up of local infrastructure such as computers, servers, video streaming servers, printers, scanners, CD burners, local Area Network, electrical wiring, rack, cables, computer backup systems and auto video equipment namely; television set, LCD projectors, speaker systems, digital cameras etc.

Software: This involves software licensing and acquisition of other application software. Communication facilities namely: Bandwidth subscription and VSAT site equipment.

Time and Mode of Delivery: One of the important issues of e-learning is time of delivery. Meyer (2002) informed that Internet which propelles e-learning to great height, presents education as a timeless process. Cisse (2009) suggests that learners are bound to learn when they want to and where they want to. There is a shift from time pattern of course delivery to asynchronous mode. (Jones & Dirckinck-Holmfeld, 2009). The mode of learning delivery could be: as a two way video, two way audio, audio graphics, electronic mail and computer conferencing. Two way video allows the teacher and the students to interact in real time. through fiber optics, telephone lines, coaxial cable, microwave transmission and satellite (Bond, 1987, Bradshaw & Brown 1989, Schamber, 1988).

One way video allows the students see and hear the instructor but the reverse is the case with the instructor. Two way audio is a live interactive oral communication between the students and their teacher. (Bond, 1987, Bradshaw & Brown, 1988). Computer and Internet delivery include teleconferencing, bulletin boards and email networks and by extension use of Web2.0 which provides for interactive web.

Approach: Various approaches have been adopted for e-learning in many countries and institutions. Some adopt blended approach while others apply the online session without the traditional method. Some e-learning stakeholders start application from the personal through team to institution levels in phase method.

Blended approach was adopted at the Federal University of Technology Akure where web 2.0 wiki authoring tools were used to create some innovative spaces in English by complimenting the traditional physical classroom (Aborishade 2009). The Polytechnic of Namibia combined face to face classes with online sessions in some on-campus students' courses. (Kangandji, 2009).

Phase approach at different levels was employed by Australian and Korean governments. Foupouagnigni (2009) observed that the adoption of e-learning in the University of Yaoundé was achieved in two phases. Phase one involves creation of E-learning Unit which has as part of its responsibility selection of online courses, selection of motivated academic professionals to develop learning materials and capacity development of the team through intensive workshop and on-the job training. The second phase involves the up-scaling of different activities by the E-learning unit through the training of students, tutors, staff and faculties, raising of awareness among staff and
students on the potentials of e-learning, provision of consulting desk to support and guide staff, integration of e-learning into structures and production of curriculum and content, establishment of access points in different faculties, deployment of online courses, implementation of changes in curriculum and organization of the university, and training on the use of the selected learning management system.

At the University of Nairobi, Omenga (2009) noted that they had a six year implementation plan which included raising level of awareness on e-learning potentials, benefits and trends in the world, and infrastructural development within the university.

In Nnamdi Azikiwe University Awka, interestingly, e-learning is being adopted at the individu-personal level. Though faculties and the university have not given attention to it, many lecturers are utilizing the web 2.0 opportunities to provide e-learning experience to the students. For instance, some lecturers in the Departments of Computer Science and Library and Information Science are providing learning opportunities with e-learning experience.

**Benefits**

The crux of this paper is on the role and benefits of e-learning. Advocates of e-learning are insisting that it has a lot to offer to education especially at the higher level. Foupouagnigni (2009) relays the benefits of e-learning which motivated its adoption in Yaoundé University to include:

Addressing the insufficiency in staff and infrastructure in the following ways:

- Well prepared and designated courses can be delivered in several campuses or universities in a flexible manner;
- Highly qualified lecturers within or in diaspora or around the world could be given opportunity to deliver quality lecturers using e-learning mode or participating in content development and evaluation;
- It can reduce the stress of writing lectures on board and correcting paper assignment;
- It can address the insufficiency of teaching and learning materials by:
- Providing access to limitless open education resources;
- Lecturers can be assisted through Creative Commons to improve and publish their lectures;
- Access point rooms are created for students to attend lectures online and interact with their teachers as well as classmates;

Improving quality of teaching, learning, interactions, assessment and evaluation process by:

- The lecturers making available improved lectures for students’ use;
- Providing students with diversified learning environment where they benefit from the state-of-the-art methodology;
- Through their interaction with their peers, lecturers, they construct, create acquire and consolidate knowledge.

Improving access to education and learning where:

- Physical distance and time constraints are overcome;
- Opportunities for learning are provided for workers and students in rural areas.

E-learning equips students and staff with appropriate ICT skills and web tools.

It is therefore apparent that beneficiaries of e-learning range from countries through institutions to individuals. Misko, Choi and Yee Wong (2004) observed that Australian government embraced online learning to enable citizenry to develop needed skills and enhance their competitive advantage towards global information economy. Such benefit was emphasized by Kallkvist, Gomez, Andersso and Lush (2009). Lee, Lee and Yoon (2009) noted that Korea invested heavily in e-learning because it is cost effective with reference to their dense population and the need for high education standard. Carty (1999) informed that with government constraints in providing adequate fund for university education and with high cost of such education, developing countries have resorted to e-learning in place of sending their best, brightest and richest students abroad for training. Grace and Kenny (2003) also observed equal access to education in the digital age.

Institutional benefits include: provision of flexible course offered through media to benefit every aspiring university student; reduction in the
cost of developing and maintaining campus infrastructure; expansion of students’ populations geographically, diverse demography and providing access to students globally (Baker and Gloster, 1994, Barnard 1997, Rockwell, Schauer, Fritz and Marx 1999).

Students and teachers’ use of e-learning is of immense benefit. Some of these benefits include:

- Flexibility of time and convenience;
- It provides alternate means of acquiring qualification for those unable to attend regular classroom;
- It provides effective means of communication for students who find it difficult to express their opinions in a live setting;
- It widens the horizon of the learners in terms of content, process and skills;
- It enhances collaboration among students and teachers;
- It allows the learner take centre stage in the learning process; and
- Teachers have more time for research and creation of quality content.

Many more benefits are derived from e-learning. Testimony of students’ benefits from e-learning is provided in one of the students’ blog contribution in Nnamdi Azikiwe University Awka Department of Library and Information Science as:

As a Student ICT replaced Ignorance with Knowledge. Before now passing assignment on Net would not have been possible if not for Information and Communication Technology. The traditional way is to write and pass in the class but with the introduction of ICT Course I am able to learn how to use the blog.

Personal Confidence is gained At this age of Information and Technology, it is so disgusting when things like the hardware, software, websites etc are discussed and one do not understand what is been [being] discussed not to talk of making an input, the course has brought a change. Today I can confidently participate effectively when issues of that nature come[s] up and can even initiate the topic.

Search for Information is made easier This course had given me the opportunity to source information outside the four walls of the Libraries. Search is now extended to the Internet which has a lot of information from which information need can be met[S].search can be done at night when the library has closed for the day. The problem of not allowing users to take materials home is reduced because one can source information from home without hindrance. Bibliographic access has made searching less stressful as it helps one obtain information at a considerable time. Shyness is overcome Students that feel shy to ask question[s] in class can easily do so through the Net .(http://mlsclas.blogspot.com)

Another benefit is recorded in the Country’s attempt to start a learning platform close to e-learning “National Open University” where it was recorded that there are 36 learning centers and over 100,000 students who enrolled. Such is a tip of the iceberg”.

Challenges

Though e-learning is a platform that is suited to ameliorate the endless struggle for admission into university in Nigeria, some issues need to be addressed to reap the fruits it produces. There is need to put the first things first. E-learning as we know is information and communication technology enabled, it is a policy issue, it requires curriculum modification, it requires determination, motivation, incentive and awareness, it requires training and above all ICT compliant environment.

E-learning requires a different infrastructural environment enabled with computer software, hardware and telecommunication facilities (Corbett 1999, Oliver & Omari 2001). Where these are not available or limited especially in the rural areas and among the low income students, access to e-learning becomes another problem (Palmieri & Cashion 2002; Kilpatrick & Bound 2004)

In a society where ICT application has become the norm, the primary challenge is to get teachers interested in engaging in this form of learning. In some institutions, this is done by providing incentives for teachers who will adopt e-learning.

Another issue is the computer literacy skills of both the teacher and the learner (Harper Hedburg, Bennett & Lockyer, 2000). Teachers need such skills and expertise to prepare course materials and facilitate learning and learners need it for the entire learning process which revolves
around him. Where ICT skill is not available it will create its own psychological problem as well as hinder effective participation.

Computer literacy skills result in new pedagogical skills that require learners' self-discipline and motivation as well as security issues in administration (Cantoni, Cellario & Porta 2004, Ramin & Levy 2006).

National and institutional policy on the curriculum, mode of delivery, certification and certificate acceptability is another challenge on e-learning. Whether the e-learning adoption is on personal, institutional or national level, they must be backed up with policy statements to guarantee their authenticity.

E-learning at all levels requires a high upfront cost in the areas of acquisition of technology, awareness, training and complete implementation. Such funds in some cases are hard to come by. Again full utilization of the fund for what it is meant for is another issue.

Despite all these problems and challenges, institutions of higher learning are adopting it not only to satisfy the yearning needs of the teeming population desiring education and the changing social outlook of learners but for competitive advantage in the information age.

Conclusion

E-learning has come to be a pedagogical shift in education method. Many industrialized and African countries have adopted it. Nigerian universities are not left out either on personal, institutional or national levels. Its obvious advantages are there to justify its adoption. There is no doubt that it can take central position in solving the university admission struggle since education will be available outside the walls of the university. Institutions like Nnamdi Azikiwe has all it takes in the areas of infrastructure, staff and computer literacy level to utilize the opportunity e-learning offers. So what stops us?

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