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Managing Perceived Challenges of E-Learning in Nigerian Higher Education

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Abstract - Higher Education is the climax of the process of providing knowledge, changing learners attitude and inculcating specialized skills in individuals preparatory to taking a life-long employment with intent to earning a living and equally contributing to national economic growth and development. The Teaching and learning process is cardinal to the realization of the educational objectives of any nation. The advent of information and communication technology has made teaching and learning easier and beyond the traditional face to face interaction between the teacher and the learner. E-learning basically involving the transfer of skills and knowledge through an electronic device aims at improving the teaching/learning process. In spite of the benefits of e-learning to both regular students and distance learners, e-learning has been fraught with some challenges in Africa. Therefore, this paper discusses some of the challenges facing e-learning in Africa particularly in the Nigerian higher education system. These among others are epileptic power supply, high cost of procurement of computer hardware, inadequate infrastructure, and resistance to change on the part of the instructors, inability of learners to make use of ICT infrastructure, inadequate skilled manpower ICT, and corruption of computer storage device through viruses. Effectively managing

the identified challenges means that the government would have to ensure regular power supply, lecturers and learners should be trained in the use of ICT infrastructure, and the government should evolve viable ICT policy as well as control or subsidise the price of the s of ICT infrastructure to make it affordable for both lecturers and learners.

Keywords- Education, Challenges, Information and Communication Technology, National Educational Objectives, University system, Descriptive Research, Ibadan, Nigeria

INTRODUCTION

Prior to the advent of technological advancement, teaching and learning was restricted to the classroom setting, as a result of this, the needs of matured and working people were hardly met as they were not privileged to learn within the four walls of the classroom setting, except for a few who were able to advantage of print distance learning materials. The alternative action was for these sets of people to resign from their job or take study leave with or without pay in order to acquire further education within the classroom setting or perpetually hang onto their jobs. In the early 1960s, Stanford University psychology Professors Patrick Suppes and Richard C. Atkinson who carried out series of experiments using computers to teach Mathematics and reading to young children in elementary schools in East Palo Alto, California. Stanford's Education Program for Gifted Youth came out from those early experiments. The early e-learning systems were based on Computer-Based Learning/Training which attempted to replicate autocratic teaching styles whereby the role of the e-learning system was assumed to be transferring knowledge, as opposed to systems developed later which were based on Computer Supported Collaborative Learning (CSCL), which encouraged the shared development of knowledge [Wikipedia, undated].

With the dawn of technology and the advocacy of education for all policy adopted by various national governments around the world, individuals now have access to learning anytime and anywhere, they find themselves through e-learning i.e. electronic learning. Abbreviations like CBT (*Computer- Based Training*), IBT (*Internet- Based*

Training) or WBT (*Web- Based Training*) are being used as synonyms to e-learning. Nowadays, these terms are being used, along with variations of e-learning. E-learning can also be variously referred to as e-learning, E-learning, and e-Learning.

E-Learning is referred to as the use of technology to enable people to learn anytime and anywhere they are. E-learning involves the use of electronic means to support teaching and learning within and outside the classroom setting. Tavangarian, Leypold, Nölting and Röser (2004) assert that the information and communication systems, whether networked learning or not, serve as specific media to facilitate the learning process. E-learning can also refer to in-classroom and out-of-classroom educational experiences through technology (wikipedia, undated).

In the same vein, Kaplan E-Learning (2000) in e-learning Africa (2008) assert that e-learning is a wide set of applications and process such as web-based learning, computer based learning, virtual classrooms, and digital collaboration that includes the delivery of content via internet, intranet /extranet, audio and videotape, satellite broadcast, interactive TV, CD-Rom etc. E-learning enables learners at distant places to receive training, information and guidance from experts or facilitators who are not physically present with them. Furthermore, e-learning is basically the computer and network-enabled transmission of information, ideas, skills and knowledge. E-learning applications and processes comprise web-based learning, computerbased learning, virtual education opportunities and digital collaboration. Skills and knowledge are delivered through the internet, intranet/extranet, audio or video tape, satellite TV and CD-ROM.

E-learning can be self-paced or instructor-led and includes media in the form of text, image, animation, streaming video and audio (Wikipedia, undated). Some e-Learning platforms enable learners to learn in traditional classrooms, while others allow students to attend classes from home or other locations. It provides students who are unable to attend the conventional brick and mortar schools due to severe allergies or other medical issues, fear of school violence and school bullying opportunity to learn or acquire knowledge. E-learning devices such as audio or video tape can be used in the traditional classroom to facilitate learning while devices such as the internet and

intranet can be used to enable students learn from their homes and other locations. There are several platforms being used for e-learning. The recent trend in the e-Learning sector is screencasting. There are many screencasting tools available but the latest buzz is all about the web based screencasting tools. The web based screencasting tools allow users to create screencasts directly from their browsers and make the video available online so that viewers can watch the video directly (Wikipedia, undated). The advantage of such tools is that it gives the presenter the ability to show his ideas, views, knowledge and flow of thoughts rather than simply explain them, which may be more confusing when delivered through a simple text instruction. However, Mahmud and Gope (2009) opine that successful implementation of e-learning is dependent on successful delivery of contents, courses and training via electronic media including the internet, intranets, extranets, satellite broadcast, audio/video tape, radio, interactive television, and compact disk read only memory.

University of Lagos has been noted as the pioneer of e-learning platform in Nigeria (Proshare, 2012). According to the newsletter, this novel programme (e-learning) seeks to fast-track learning by tapping into the popularity that the internet and GSM phones enjoy among students. The UNILAG Mobile System and e-learning Network package are the result of collaboration between the institution and Dalcoms Technologies Limited, Lagos. These include an SMS - connect network, an internet learning platform and a radio broadcast system. With the new package, a student could receive information about his text materials, evaluation, payments, curriculum, lectures, time-table and examinations on their personal devices. The package was designed to make learning less burdensome for students. Students could enter any cybercafé to access lectures, ask questions and chat with lecturers. Even with a mobile handset, a student could receive and give information about his course in the university. Also, software based on lectures, curriculum and course materials have been developed for students, and adequate ICT gadgets have also been procured. In addition, students can receive lectures on the institutions radio station.

It is no gain saying that the importance of e-learning is growing fast in higher education. Otubelu (2011) submits that the major advantages of e-learning are flexibility, convenience, and the ability to work at any

place where an internet connection is available and at one's own pace. He further opines that e-learning is a viable alternative for those with commitments or conditions such as family or work, or who cannot participate easily for reasons including disability. The time and cost of commuting to and from campus is eliminated. In spite of the benefits of e-learning in higher education, the use of e-learning has been plagued with certain challenges.

Obviously, there are several challenges to wholesome employment of e-learning in the Nigerian system. Some of these challenges among others are irregular power supply. E-learning can only thrive when there is adequate and regular power supply. The major challenge facing e-learning implementation in Nigeria as in every other sector of the economy is incessant power outage and inadequate power supply (Onuka and Onabamiro, 2010). Epileptic power supply or incessant and inadequate power supplies on campus do paralyze teaching-learning process especially when it involves e-learning. Also, in assurance of constant power supply has made lecturers become unmotivated and unwilling to adopt the e-learning approach in the teaching-learning process.

Onuka (2011) and, Bamiro and Adedeji (2010) asserted that inadequate funding of higher education and imprudent fund management. It is pertinent to mention that the educational system especially higher education in this country is poorly funded by the government. The government of Nigeria spends a huge amount of money on security and some other sectors with little left to finance the educational sector. This has made it impossible for higher education management to provide adequate, effective and efficient Information and Communication Technology devices which are needed to facilitate e-learning. Most lecturers do not have necessary e-learning facilities such as computer and projectors for power point presentation of their lecture notes and the majority of the students cannot either due to the dearth of fund as most members of the latter group are mostly dependent on others without any assistance of scholarship from either government or philanthropic organisations or individuals. Fund provided for e-learning could sometimes be ill managed and inappropriately utilized.

According to Onuka, (2007) and Onuka (2011), inadequate

provision of relevant infrastructure is another major problem challenging e-learning. It is stating the obvious, to mention that most computer science or computer engineering students who studied in the Nigerian higher education cannot efficiently manipulate computer software and hardware due to no fault of theirs, but largely because of nonavailability of the relevant infrastructural facilities to undertake a practical training as well as irregular power outage. The reason for this is not farfetched; one of the reasons that most of the higher institutions of learning in Nigeria are confronted with inadequate infrastructure is the lack of adequate funding. The necessary computers, projectors, audio or video tape, satellite TV and CD-ROM needed to facilitate e-learning are not available in most of our higher institution of learning. In fact, the few ones that are available in some institutions are usually either obsolete or out of use due to lack of replacement and maintenance.

Mahmud and Gope (2010) submitted that inappropriate curriculum content or programme is another challenge facing higher education in this country. The content of most of the curricula designed for most programmes by curriculum planners in higher education in Nigeria are overloaded. Consequently, in bid to cover all content of the curriculum, lecturers tend to use the traditional face-to-face teaching methods, because any attempt to make use of e-learning facilities may slow down the pace of the teaching-learning process. In addition, there are other several activities engaging the teacher and even the learner that makes them unable to devote sufficient time in perfecting their skills, in the use or application of the various e-learning platforms or programmes.

Resistance to change is another challenge of e-learning. Often times, men tend to resist change. As important as e-learning is, most lecturers stick to the traditional face-to-face teaching methods because they do not want to pass through the rigor of receiving training in the use of e-learning facilities. Also, some see the exercise as a waste of time, due to the fact that no sustainable policy has been formulated to encourage the application of e-learning platforms and programmes in the Nigerian higher education system.

Inappropriate use of internet facilities is also another major challenge plaguing e-learning. It is pertinent to mention that in spite of

the laudable benefits accruing from e-learning to teaching and learning process, there are some distractions that crop up while accessing the internet. For instance, some students spending the good part of their time browsing issues or materials that are irrelevant to learning while some spend their time chatting with friends at the expense of their studies while some perpetrate a lot of atrocities such as engaging in internet sex, exposures to pornographic, committing internet frauds rather than learn. Students' involvement in such activities has been detrimental to their moral lives as well as academic performances.

Another challenge of e-learning in Nigeria higher education is inappropriate computer hardware pricing. It is not a gainsaying that e-learning materials or devices are costly, and most lecturers and students cannot afford to purchase them. The materials are not only costly to procure they are also expensive to maintain or repair. Another challenge is that, it becomes very difficult to purchase quality computer hardware; most products in the market are substandard materials. The cost of computer software and hardware should either be regulated or subsidized to enable all prospective learners have access to owning a computer system for adequate access to the various e-learning platforms and/or programmes.

It is apparent that the importation of outrageous alien ideas and cultures are other challenges confronting e-learning in Nigeria higher education. Though the importance of e-learning cannot be overemphasized yet it has aided the importation of outrageous alien ideas and cultures. These ideas and cultures have brought about moral decadence in our society and have also contributed to destroying our hitherto cherished value system. Most of our youths have lost their dignity and the culture of the fatherland and have become the object of shame and ridicule to their families and themselves. In addition, corruption of computer storage device through viruses is a major challenge facing e-learning. Vital information on the content of programme of teaching and learning may get infected through computer viruses and such information may not be retrievable and will be a setback to the teaching-learning process.

Conclusively, shortage of quality IT staff and e-learning specialists are challenges threatening e-learning Nigeria higher institution. The ICT sections in most universities in this country are plagued with

shortage of quality IT staff and e-learning specialists, which invariably made it difficult for students to access ICT facilities needed to enhance their learning any time they so desired.

It is important to mention that in order to effectively manage the challenges of e-learning in the Nigerian university system all hands must be on deck to address the identified challenges. Onuka and Durowoju (2010) submitted that the provision of an effective management of the utilisation through efficient budgetary system is a key to solving the challenges as it is the only way constant power supply can be assured. Such financial provision has to be sourced before it can actually be provided and managed to ensure no wastages exist through any means including corruption. The following are some of the ways by which, these challenges can be effectively and efficiently managed. Onuka (2011) maintained that adequate funding of higher education is one of the solutions to the challenges confronting e-learning in Nigeria higher institution. It is apparent that the basic catalyst for national development is education, and higher learning is the gateway for producing graduate who will become instrumental for national and global growth. Hence, it is expedient that the government as well as non-governmental organisations should ensure adequate funding of higher education so that all the e-learning facilities that will make the teaching-learning environment conducive and motivating for teachers and students can be adequately provided. This in turn, will engender provision of competence graduates who will become the workforce of the nation.

Furthermore, Onuka and Durowoju (2010) also declared that regular and adequate power supply is another measure that should be put in place to solve the problem of e-learning. It is high time that the government of this nation rises to tackle the problem of incessant power supply in this country. The government should decentralize the generation of power supply to state and local level. Every state and local government should endeavour to generate power for its populace. The government and non-governmental organisations should assist higher institutions of learning to generate power supply for their communities so that e-learning programmes that will promote motivating and conducive learning environment can be provided for lecturers and students. Again, the government should make all

workers in the power sector accountable for the fund disbursed into the sector.

Onuka (2010) submitted that adequate funding of higher education and prudent fund management are essential for tackling the challenges of e-learning. The government should ensure that a sufficient amount of money is earmark in the national budget for the education sector especially higher education. The onus lies on the government to ensure that the fund allocated for higher education is channeled to various higher institutions and adequately utilized to make provision for the e-learning materials that will foster effective and efficient teaching-learning process. The government should mount up monitor and evaluation agencies that will ensure that the entire fund allocated to higher institutions are adequately and efficiently utilized for the right course or purpose.

In addition, the government, non-governmental organisations, higher institutions management, parents and other stakeholders should make provision for adequate infrastructures that will enhance e-learning in higher learning. This can be done through the provision of grants, donations of computers, video tapes recorders, projectors, CD-ROM and other e-learning facilities. Likewise, curriculum or educational programme planners should make sure that the learning experiences designed for the various course of study in higher institutions of learning are not overloaded. This is important so as to ensure competence or mastery of necessary skills that are needful for various career choose by students. If curriculum are not overload it will enable lectures to make good use of the e-learning devices for foster effective and efficient teaching and learning process which will in turn promote competency on the lectures as well as students. Also, instructions of the use of e-learning should be included in the curriculum for all students irrespective of the area of specialization. This will enable all graduates of higher learning to be skilled in the use of e-learning to facilitate learning.

Besides, sensitization programmes should be organized for higher institutions management, lecturers and students to educate them on the importance of e-learning to the teaching-learning process and to the advancement of the educational system and the nation as a whole. Moreso, seminars, conference, and workshops should be organized for

all educational stakeholders such as lecturers and students on the use of the new methods of teaching which is e-learning and they should be encouraged to transit from the old to the new technique of teaching and learning which the various e-learning platforms epitomise. If lectures and students are equipped in the use of e-learning, they will gladly and conveniently shift from the face-to-face interaction between the lecturers and students to e-learning approach which enable teacher and students to effectively interact even at a distance.

Another measure that should be adopted to tackle the challenge of e-learning is the regulation of the use of internets. In that wise, conferences, seminars, workshops and training courses on effective time management should be arranged for lecturers and students on regular basis. This will enable them to effectively and efficiently plan their time and discard any form of distraction from the internet which could jeopardize their job and academic performances.. Content of the various e-platforms must be regulated and controlled to avoid their use for distractive exercises which could be counter-productive to the purpose of e-learning programmes.

Again, the government should introduce price policy control on the sales of ICT infrastructure to make it affordable for both lecturers and learners. The government and non-governmental organisation should also ensure the provision of computer hardware to lecturers and students at a subsidized rate so that they will all have access to e-learning facilities. The government through the Computer Professional Council of Nigeria (CPN) should also make sure that all substandard computer hardware is ejected out of the market. Furthermore, a benchmark on the quality of computer hardware to be produced and sold in the Nigerian market should be clearly spelt out for all manufacturers and importers. In the same vein, government should set up an agency that will assess all information that are transmitted through the internet so as to filter all outrageous ideas and cultures that are detrimental to our youth, culture and nation at large. The value, morals and culture of our nation should be cherished and pass on to our youth. Stringent measure should be taken against any erring youth.

Lastly, adequate protection of computer storage device: Stakeholders should discuss and devise strong mechanism for protection to safeguard the computer storage device and computer hardware

against virus. This can be achieved if the government is encouraged to draw ICT policy and make legislation against destruction of computer hard and soft ware by unscrupulous persons whose businesses are creating viruses on incessant basis. Systemic monitoring mechanism must be established to track down any untoward acts of individuals aimed at unnecessarily corrupting the ICT systems that could distort e-learning programme.

The prospects of effectively managing e-learning challenges in Nigeria university system cannot be undermined. The prospects of effectively managing e-learning challenges include effective management of e-learning platforms will promote effective cooperative developmental action for the benefit of humanity which in turn will engender effective flow of information between the teachers and learners, engendering effective application of e-learning platforms which will in turn foster suitable, motivating and conducive learning environment resulting in successful interaction between the teachers and learners through such platforms. Furthermore, well managed e-learning platforms/programmes in the Nigerian higher education system will engender improved students' academic achievement. When e-learning platforms/programmes are appropriately managed it will enhance teachers' and learners' competency. It will also create opportunities for both the teachers and students to engage in other profitable work which can help to cushion the financial demands of their academic pursuit. Furthermore, proper management of e-learning challenges engenders independent study on the part of the students. It will also make learning interesting, motivating and rewarding through searching of materials on the internet. E-learning enhances students' capacity to communicate with their classmates without hindrance whatsoever. Another prospect of a well managed e-learning programme is that it can be adaptive to learners' needs. It will also enhance teachers' and learners' competency among others.

In view of the above discussion, this study investigated the perception of academic staff, academic technologists and students about the challenges and solution of e-learning in Nigeria Universities as a follow up to a discourse where the challenges were earlier highlighted. The study also examined the prospects of e-learning in Nigeria higher education.

OBJECTIVES OF THIS STUDY

The objectives of this study were to investigate the perception of some of stakeholders in Nigerian university about the challenges of, the possible solutions to identified challenges and prospects of adopting e-learning mechanism in the higher education [university] teaching and learning process.

1. To determine the perceived challenges of adopting e-learning in public universities in Nigeria;
2. To examine the probable solutions to these perceived challenges in public universities in Nigeria; and,
3. To describe the prospects of adopting e-learning in public universities in Nigeria.

METHODOLOGY

Research Design

Survey design was employed for the study.

Population

The population consisted of students, academic and non-academic of universities in North-Central and South-West Geo-political zones of Nigeria.

Sampling Technique and Sample

Multi-stage sampling technique was used to select the participants as follows: Nigeria was divided according to the existing clusters of six geo-political zones: South-west, South-east, South-south, North-central, North-east and North-west. Two geo-political zones were randomly selected namely: South-west and North-central. From each of the selected geo-political zone, two states were randomly chosen, namely: Kogi & Kwara [North-central] and Oyo & Osun [South-west]. Universities in the two zones were clustered along federal and state

owned universities, one type each was purposively chosen from each zone (North-central: University of Ilorin [Federal] and Kogi State University [State]; South-west: Obafemi Awolowo University [Federal] and Ladoko Akintola University [State]). From each of the university, 50 academic staff, 100 students (50 undergraduates and 50 post-graduates), and 30 academic technologists were randomly selected (totalling 200 academic staff, 400 students, and 120 academic technologists)

Instrumentation

An instrument named Perceived Challenges, Solutions and Prospect of E-learning Questionnaire (CSPEQ) was designed to elicit information on the perceived challenges, solutions and prospect of e-learning in Nigerian Universities. The instrument comprises four (4) sections. Section A elicited information on the bio-data of the respondents, Section B generated information on the perceived challenges of e-learning in Nigeria Universities, Section C obtained information on the solutions to the various challenges of e-learning while Section D elicited information on the prospects of e-learning in Nigerian Universities. The reliability of the instrument was determined by administering the instrument twice within a week on a sample of fifty taking from the study population who, however, did not participate in the real study. The data obtained was analyzed using Spearman Brown correlation statistics. It was also subjected to content validity analyses using Lawshe's (1975) Content Validity Ratio. The reliability coefficients as follows: Section B – 0.75, Section C – 0.77, and Section D – 0.80 while the content validity coefficients for these three sections were: 0.83; 0.78 & 0.76 in the same as for the reliability.

Data Collection Procedure

The instrument was used to generate data from two (2) Federal universities and two (2) State universities by the researchers with the assistance of research graduates who administered the instrument on 200 academic staff, 400 students, and 120 academic technologists in all.

Data Analysis

Data collected during the course of the study were collated, scored and analysed using simple percentages.

RESULTS AND DISCUSSION

Research hypothesis 1

Table 1. Perceived challenges of adopting e-learning in public universities in Nigeria

S/NO	ITEMS	Academic Staff's Perception		Academic technologists' Perception		Students' Perception	
		Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)
	Challenges of e-Learning are:						
1	Irregular power supply	95	05	92	08	98	02
2	Inadequate funding of higher education	80	20	85	15	73	27
3	Imprudent fund management	60	40	65	35	45	55
4	Inadequate provision of relevant infrastructure such as computers, projectors, audio or video tape, satellite TV	70	30	73	27	80	20
5	Curriculum overload makes lecturers to adopt traditional face-to-face teaching methods, because e-learning facilities may slow down the pace of the teaching-learning process	46	54	40	60	65	35
6	Lecturers engage in several activities that make them unable to devote sufficient time in perfecting their skills in the use of the various e-learning programmes.	20	80	40	60	85	15
7	Resistance to change	51	49	62	38	75	25
8	Inappropriate use of internet	69	31	77	23	35	65

9	High price of computer hardware	73	27	66	34	79	21
10	The importation of outrageous alien ideas and cultures	68	32	75	25	45	55
11	Corruption of computer storage device through viruses	84	16	80	20	88	12
12	Shortage of quality IT staff and e-learning specialists	52	48	45	55	66	34

From the table above, the academic staff who perceived that some of the challenges facing e-learning were irregular power supply, inadequate funding of higher education, imprudent fund management, corruption of computer storage device through viruses, the importation of outrageous alien ideas and cultures, high price of computer hardware, inadequate provision of relevant infrastructure such as computers, projectors, audio or video tape, satellite TV ranged from 60% to 95%, those who perceived that shortage of quality IT staff and e-learning specialists, resistance to change, curriculum overload makes lecturers to adopt traditional face-to-face teaching methods, because e-learning facilities may slow down the pace of the teaching-learning process were perceived challenges confronting the implementation e-learning in Nigerian universities and they ranged from 46% to 52%, while 20% of the respondents perceived that lecturers' several engagements could inhibit their ability to devote sufficient time to perfecting their skills in the use of the various e-learning programmes. The implication of this finding is that almost all the academic staff perceived that e-learning in the university system faces a lot of challenges which could hamper the effective use of e-learning to improve teaching-learning process in our university.

On the part of the academic technologists, 60% to 92% of them agreed that corruption of computer storage device through viruses, the importation of outrageous alien ideas and cultures, high price of computer hardware, inappropriate use of internet, resistance to change, imprudent fund management, inadequate funding of higher education and irregular power supply were very serious challenges facing e-learning; while 40% to 45% of them perceived that curriculum overload makes lecturers to adopt traditional face-to-face teaching methods because e-learning facilities may slow down the pace of the

teaching-learning process, lecturers engage in several activities such as meetings, consultancy, communities, sponsored researches among other things, contribute to making them averse to perfecting their skills in the use of the various e-learning programmes; the shortage of quality IT staff and e-learning specialists also constitute challenges to the wholesome adoption of e-learning modes in our university system.

Furthermore, 65% to 98% of the students perceived the challenges of e-learning as including: irregular power supply, inadequate funding of higher education, Inadequate provision of relevant infrastructure such as computers, projectors, audio or video tape, satellite TV, curriculum overload, often compelling lecturers to adopt traditional face-to-face teaching methods in order for them to save which would have been used in adapting to e-learning programmes. In addition, lecturers are to engage in several activities filling up the gap in the system, because there are shortages of academic staff. There are also cases of resistance to change, high price of computer hardware, corruption of computer storage device through viruses, and shortage of quality IT staff and e-learning specialists serving as major inhibitions to full its implementation. 35% to 45% of the student respondents perceived that the importation of outrageous alien ideas and cultures, imprudent fund management and inappropriate use of internet were some of the challenges militating against e-learning in our universities.

The above findings corroborate with Onuka and Onabamiro (2010), Onuka (2011) and, Bamiro and Adedeji (2010) who stated that inadequate funding of higher education and imprudent fund management, epileptic power supply or incessant and inadequate power supplies on campus, inadequate provision of relevant infrastructure and resistance to change are some of the challenges facing e-learning in Nigeria universities. The findings are also in consonance with the submission of Onuka (2011) and Onuka (2007) that inappropriate curriculum content or programme, inappropriate use of internet, the importation of outrageous alien ideas and cultures, corruption of computer storage device through viruses, the importation of outrageous alien ideas and cultures and inadequate funding of higher education and imprudent fund management are challenges of e-learning in Nigeria higher education.

Research hypothesis 2

Table 2. Probable solutions to these perceived challenges in public universities in Nigeria

S/ NO	ITEMS	Academic Staff's Perception		Academic technologists' Perception		Students' Perception	
		Yes	No	Yes	No	Yes	No
	Managing/ Solution to Challenges of E-learning						
1	Adequate funding of higher education	98	02	80	20	95	05
2	Regular and adequate power supply	99	01	92	08	97	03
3	Prudent management of fund	70	30	80	20	72	28
4	Adequate provision of infrastructure/facilities	90	10	82	18	95	05
5	Moderate curriculum or programme content	55	45	58	42	74	26
6	Management should educate lecturers and students on the importance of e-learning to the teaching-learning process	79	21	81	19	83	27
7	Rapidly transition from old to new method of teaching	67	33	63	37	80	20
8	The use of internets should be regulated	73	27	67	33	52	48
9	Regulated or appropriate computer hardware pricing	83	17	75	25	84	16
10	De-importation of outrageous ideas and culture	81	19	78	22	78	22
11	Adequate protection of computer storage device	88	12	85	15	86	14

From the table above, between 67% to 99% of the academic staff and 63% to 92% of the academic technologists perceived that adequate protection of computer storage device, de-importation of outrageous ideas and culture, regulated or appropriate computer hardware

pricing, the use of internets should be regulated, rapidly transition from old to new method of teaching, management should educate lecturers and students on the importance of e-learning to the teaching-learning process, adequate provision of infrastructure/facilities, prudent management of fund, regular and adequate power supply and adequate funding of higher education were possible solutions to the challenges of e-learning in Nigeria Universities.

In the same vein 72% to 95% of the students perceived that moderate curriculum or programme content, de-importation of outrageous ideas and culture, regulated or appropriate computer hardware pricing, regulated use of internets, rapidly transition from old to new method of teaching, management should educate lecturers and students on the importance of e-learning to the teaching-learning process, adequate provision of infrastructure/facilities, prudent management of fund, regular and adequate power supply and adequate funding of higher education were possible remedies to challenges of e-learning in Nigeria Universities. 55% of the academic staff and 58% of the academic technologists perceived that provision of moderate curriculum or programme content is another solution to the problem of e-learning. Furthermore, 52% of the students perceived that the use of internets should be regulated is one of the possible remedy to the problem of e-learning.

Based on the above results, are in agreement with the assertions of Onuka and Durowoju (2010) who affirmed that regular and adequate power supply, effective and deliberate change management, rapidly transition from old to new method of teaching, regulated or appropriate computer hardware pricing and de-importation of outrageous ideas and culture are measures that should be put in place to solve the challenges of e-learning. Furthermore, these findings is in tandem with the observations of Onuka (2011) who claimed that adequate funding of higher education and prudent fund management, adequate provision of infrastructure/facilities, and moderate curriculum or programme content would facilitate.

Research hypothesis 3

Table 3. Prospects of adopting e-learning in public universities in Nigeria

S/ NO	ITEMS	Academic Staff's Perception		Academic technologists' Perception		Students' Perception	
		Yes	No	Yes	No	Yes	No
	Prospects of effectively managing e-learning challenges						
1	Effective management of e-learning platforms will promote effective co-operative developmental action for the benefit of humanity	98	02	81	19	90	10
2	Effective management of e-learning will engender effective application of e-learning	90	10	78	22	91	09
3	Effective management of e-learning foster suitable, motivating and conducive learning environment	93	07	95	05	93	07
4	Well managed e-learning programmes in the Nigerian higher education system will engender improved students' academic achievement.	95	05	92	08	97	03
5	When e-learning platforms/programmes are appropriately managed it will enhance teachers' and learners' competency	89	11	78	22	91	09
6	It will also create opportunities for both the teachers and students to engage in other profitable work which can help to cushion the financial demands of their academic pursuit.	93	07	87	13	91	09
7	Proper management of e-learning challenges engenders independent study on the part of the students.	90	10	94	16	96	04
8	Makes learning interesting, motivating and rewarding through searching of materials on the internet.	78	22	81	19	91	19

9	E-learning enhances students' capacity to communicate with their classmates without hindrance whatsoever.	81	19	80	20	90	10
10	It can be adapted to learners' needs.	67	33	71	29	72	28

The table above revealed that 67% to 98% of the academic staff, 71% to 95% of the academic technologists and 72% to 97% of the students perceived that effective management of e-learning platforms will promote effective cooperative developmental action for the benefit of humanity, effective management of e-learning will engender effective application of e-learning and effective management of e-learning foster suitable, motivating and conducive learning environment in Nigerian universities. They also perceived that well managed e-learning programmes in the Nigerian higher education system will engender improved students' academic achievement, when e-learning platforms/programmes are appropriately managed it will enhance teachers' and learners' competency. It will also create opportunities for both the teachers and students to engage in other profitable work which can help to cushion the financial demands of their academic pursuit, proper management of e-learning challenges engenders independent study on the part of the students, makes learning interesting, motivating and rewarding through searching of materials on the internet, e-learning enhances students' capacity to communicate with their classmates without hindrance whatsoever, and it can also be adapted to learners' needs. These findings corroborate the submissions of some researchers earlier mentioned [Onuka and Durowoju, 2010; Onuka and Onabamiro, 2010; Onuka, 2011]

CONCLUSION

From the above discourse, the use of e-learning in the higher education system of Nigeria would derive tremendous benefits for the lecturers, students and the Nigerian society. It can also engender national development which is the principal objective of the education sector. This discourse reveals that some of the challenges facing the adoption of e-learning in higher learning include epileptic power supply, inadequate funding of higher education, inadequate provision

of infrastructure, over-load curriculum or programme, resistance to change, inability to rapidly transit from the old to the new the method of teaching, distraction from the use of internet among others. The suggested solutions to overcome or effectively manage these challenges were made and they include: provision of regular and adequate power supply, adequate funding of higher education, provision of adequate infrastructure, moderate curriculum or programme content, deliberate and effective change management on the part of the relevant stakeholders: lecturers, students and the higher institution management, effectively guided transition from old to a new method of teaching, regulating the use of internets, controlling the content of ICT media and instituting computer hardware pricing policy to ensure all have access to their use.

RECOMMENDATIONS

The following recommendations were made in order to enhance the application of e-learning platforms/programme in the Nigerian higher education system.

- Lecturers and students should be encouraged to acquire the requisite knowledge and skills in the use of e-learning platforms/programme as well as constantly update themselves, so that they will not lag behind their counterparts in the rest of the world.
- Funds should be made available in the appropriate quantity for the purchase and maintenance of e-learning equipment to promote effective and efficient teaching and learning environment. Managers in the system must ensure prudent utilisation of such funds as designated by the providers or determined by needs.
- Sensitization programmes should be organized for higher institution managers, lecturers and students, to educate them on the importance of e-learning to the teaching-learning process and to the advancement of the educational system and the nation as a whole.
- Seminars, conference, and workshops should be organized for all educational stakeholders such as lecturers and students on the use of the new methods of teaching which e-learning stands for.

- Teachers should be trained on the appropriate use of ICT to develop their own teaching support materials.
- Change management should be employed to sensitize users and prepare them to embrace the application of e-learning platforms in the teaching and learning process.
- Effort should be made by various stakeholders to ensure that an enabling environment is created in order to eliminate possible obstacles to the application of e-learning in the Nigerian higher education system.
- E-learning equipment should be constantly upgraded to make them current.
- Prospective users of e-learning platforms should also be oriented in the appropriate use of ICTs so that they can manage their time adequately.
- The government and relevant non-governmental organisations including the organized private sector organisations should ensure the provision of computer hardware to lecturers and students at subsidized rate so that they will all have access to e-learning facilities.
- The government should introduce price policy to control selling prices of ICT infrastructure/facilities to make it affordable for both lecturers and learners.

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