Assessment of the Utilization of E-learning Facilities among Lecturers in Kaduna Polytechnic for effective, Teaching, Learning and Sustainable National Development in Nigeria

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Abstract

The research was on the Assessment of the Utilization of E-learning Facilities among Lecturers in Kaduna Polytechnic for effective teaching-learning and sustainable National Development in Nigeria. To achieve this purpose three objectives were formulated with respect to determining the types of e-learning facilities available, the extent of utilization of e-learning facilities in Teaching-learning process by the Lecturers and to discover the challenges encountered by the Lecturers in utilizing e-learning facilities in Teaching- learning process. The study employed descriptive survey research method. The population of the study consisted of all the lecturers in Kaduna polytechnic totaling 1252, Nigeria. Simple Random sampling technique was used in selecting a sample of 150 lecturers. Structured questionnaire was used as instrument for data collection. A total of 150 copies of the structured questionnaires were administered to the respondents, 123 copies were retrieved and found useful for the study. Mean and standard deviation were used in analyzing the data collected. The findings of the study revealed that, Mobile phone/smart phone, Multimedia tools like radio, CD-ROM, Computer room, Multimedia projectors/PowerPoint, Digital camera and lots of others, Digital Library, Off-line ordinary computer and E-mail facilities were the most available types of e-learning facilities in Kaduna polytechnic and incessant interruption in power supply, High cost of hardware in Nigeria, Slow connectivity, inadequate funding, High transmission cost, and Lack of Government commitment to the development of the educational sector were the major challenges encountered by the respondents in utilizing e-learning facilities in teaching-learning process. It was concluded that, the most available types of e-learning facilities in Kaduna polytechnic were utilised at medium and low level respectively. In view of the above a number of recommendations were made among which Government agencies such as The National Board for Technical Education, Power holding company and National Information Technology Development Agency should be more committed, productive and more dedicated toward the development of Science and Technical education, provide steady and constant power supply, subsidized e-learning facilities as well as, provide adequate bandwidth and strong internet connectivity for Sustainable National Development in Nigeria.

Keywords: E-learning, e-learning facilities, Utilization, Lecturers and Polytechnic.

1 Introduction

The rapid development and applications of Information and Communication Technologies (ICTs) and the Internet in the last three decades have embedded almost all aspect of human endeavor and opened a new and easy way of information management. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2011) ICT more than any other technology provide, lecturers, teachers and students access to a vast stores of knowledge beyond the school, as well as with multi-media tool to add to this store of knowledge. It has become so attached to contemporary educational delivery

worldwide that it has virtually become impossible to deliver or receive formal education without the application of such advanced technologies (e-learning facilities) in the processes. Higher educational institutions in particular have dramatically transformed their mode of operation in terms of teaching-learning process. Today, the use of chalk and duster in our seminar rooms and lecture theatres are completely extinct in some higher institutions. Electronic learning (E-learning) has emerged and progressed drastically with the development of the internet and information and communication technologies. (Imran and Ali, 2014)

Recent and rapid development in the telecommunication industry in Nigeria has brought about an unprecedented upsurge in the use of e-learning facilities in tertiary Institutions of the most part of the country for sustainable National development. Institutions of higher learning all over the world are adopting and utilizing e-learning technologies to deliver their various academic programmes. According to Miwa as cited in Huang (2010) asserted that tertiary institutions in Asian countries like Japan, Korea, and Singapore have been using e-learning facilities to facilitate higher education in a networked environment. Therefore, the adoption and utilization of e-learning facilities by lecturers in Kaduna polytechnic for effective teaching-learning and sustainable National development in Nigeria is very crucial and imperative to ensure conformity with the present international trends (Anggrainningsih, Umam and Setiadi (2018))

E-learning can be regarded as the application of electronic media and information and communication technologies in teaching and learning. The European Union (EU) as cited in Olatubosun, Olusoga, and Samuel, (2015) defines e-Learning as the use of new multimedia technologies and the Internet to improve the quality of learning by facilitating access to resources and services as well as remote exchanges and collaboration. E-learning is a term encompasses of a wide and various set of applications and processes, which include computer-based learning, web-based learning, virtual classrooms, and digital collaboration. It also involves the delivery of content via internet, intranet/extranet (LAN/WAN), audio and video, satellite broadcast, interactive TV, CD-ROM, and many more. On their own part, Allen and Samuel (2008) expanded this list further to include TV, mobile phone, webcam, email, DVD/CD, website, telephone, audio-conferencing, audio graphics, video-conferencing as technological means of delivering e-learning. For e-learning, then, a wide set of applications and processes were included which were both web and computer-based, offering virtual classrooms, and digital collaboration. Its content could be delivered by modes as various as internet, intranet, audio and video, CD-ROM, satellite, product interactive TV and more.

Despite the obvious and numerous benefits derived from using ICT in teaching and learning process. Shahadat, Muhbub and Clement (2012) observed with great concern that several higher educational institutions are finding it difficult to even implement basic of ICT. Inadequate access to e-learning facilities in developing nations like Nigeria had earlier been observed by scholars such as Adika, 2003, Mohammed & Mumtaz, (2010) and Anggrainningsih, Umam and Setiadi (2018) who remarked that efforts should be made to salvage staff and students in African Universities from the problem of access to e-learning facilities. E-learning literatures also reveal that access to e-learning can be challenged by many hindrances. These include issues such as perennial epileptic electricity supply, high cost of hardware like personal computers (PC) and laptops (which students find astronomical), technophobia systems in the country and poor attitude of students towards ICT, among others (Salawudeen 2006), Achebe 2012 and Bello et –el, 2017).

1.2 Statement of the problem

E-learning has become an integral part of the 21st century education and training which was adopted by different institutions (Abubakar and Hassan, 2013). Utilization of e-learning facilities in schools and

colleges increased learning effectiveness and convenience for the students or lecturer, enhanced image for the school or college, cost savings for the school or the Government, classroom space savings for the school or the institution, reduced traffic and parking congestion on the campus coursed by students, lecturers and visitors. (Kim, 2007) despite these benefits, there are some challenges as noticed by Mohammed and Mumtaz (2010) asserted that low funding, poverty, low tele-density etc. are among the factors militating against the effective use of e-learning facilities. On their own part, Adelabu, adu and Adjorgri (2014) and Adelabu, Adu and Adjorgri (2015) stated that insufficient funds, high cost of facilities, high cost of maintenance are factors that inhibit the use of e-learning facilities in developing countries.

Consequently, upon these reports and observations there is need for a study to investigate the utilization of e-learning facilities among the lecturers in Kaduna Polytechnic, Nigeria for effective teaching-learning and sustainable National Development.

1.3 Research Questions

1. What types of e-learning facilities are available in Kaduna polytechnic, Nigeria?
2. To what extent do lecturers in Kaduna polytechnic, Nigeria utilise e-learning facilities in teaching-learning process?
3. What are the challenges encountered by the Lecturers in Kaduna polytechnic, Nigeria in utilizing e-learning facilities in teaching-learning process?

1.4 Objectives of the Study

The study seeks:-

1. To determine the types of e-learning facilities available in Kaduna polytechnic, Nigeria.
2. To find out the extent of utilization of e-learning facilities in Teaching-learning process by the Lecturers in Kaduna polytechnic, Nigeria
3. To identify the challenges encountered by the lecturers in kaduna polytechnic in utilizing e-learning facilities in teaching- learning process.

2 Review of the Related Literature

The application of e-learning facilities in higher educational institutions in teaching and learning process has become one of the most important and widely discussed issues in the contemporary educational policy. E-learning is an important factor in this era (information age) according to Keechi, et – el (2017) it holds a great promise to improving teaching and learning in our tertiary educational institutions, when properly adopted and applied. It is an important instructional tool to facilitate the transfer of numerous type of information and an effective means of communication in Nigerian schools and colleges. E-Learning can be seen as the application of a whole range of technologies involved in information processing and electronic communications, such as computers, internet, e-mail, computer software, satellite, mobile communication gadgets, and other allied electronic devices for dissemination of knowledge and information. It involves the application of computer and information technology in teaching and learning process (Olusesan and Emmanuel 2015).

Effective utilization of e-learning facilities in our tertiary institutions particularly polytechnics is necessary for effective teaching-learning and sustainable National development to take place. Abidoye (2010) and Anggrainningsih, Umam and Setiadi (2018) maintained that, utilization of e-learning facilities

such as the web, internet, multimedia, computer, projector, television assist the lecturers to deliver good teaching-learning process and greatly enhanced students' performance.

There are numerous and various e-learning facilities utilized for effective teaching and learning. According to Olusesan and Emmanuel (2015) some of the e-learning facilities include:

- Screen Projector
- White Board
- Laptop/desktops
- Mobile phone
- Recommended tutor software
- Virtual classroom
- Multimedia tools like radio, CD-ROM
- Digital camera and lots of others.

Many tertiary institutions in Africa are finding it difficult to implement the basic ICT, in support to this assertion Shahadat, Muhbub and Clement (2012) and Bello et-el (2017) observed with great concern that several higher educational institutions are finding it difficult to even implement basic of ICT. Moreover, Adelabu et al. (2014) as well as Ahmar and Rahman (2017) asserts that e-learning facilities are not available in most schools and colleges due to poor infrastructure amenities and attitude of students and lecturers, this has affected the availability of e-learning facilities in our tertiary institutions. Consequently, effective teaching-learning and sustainable National development in Nigeria may not be achieved. A research conducted by Olaniran, Nzima and Nzima (2017) revealed that, the majority of the distant pre-service teacher trainees have not been utilizing the e- learning resources in the classroom.

Utilization of e-learning facilities among lecturers in higher institutions of learning is facing somany challenges, Ezenwafor, Okeke, and Okoye, (2014) conducted a research on theUtilizationof E-Learning Resources For Instruction by Technology and Vocational Educators in Tertiary institutions in South -East Nigeria the findings revealed that, the respondents utilize e-learning resources to a low extent and that lack of skills for utilizing the resources and their inadequate supply in institutions, among others, are their major constraints. Utilization of e-learning facilities in our tertiary institutions in Nigeria is facing so many setbacks which comprises of High cost of hardware in Nigeria, Incessant interruption in power supply, Technophobia, Cost of computers very high, Lack of internet facilities, Slow connectivity, High import tariffs, High level of computer illiteracy, Inadequate funding, High transmission cost, and Lack of Government commitment to the development of the educational sector. (Bibiana, 2012, Allison, 2014 and Nyagorme (2017)

In his on part, Ifinedo (2007) categorized the constraints into three categories:

a. Human capital problems – These involve low literacy level, poor information technology skills and poverty.

b. Institutional problems –These cover organizational problems, resistance, and lack of awareness and

c. Infrastructural problems – These include poor internet access, low bandwidth, high cost of ICT services, inadequate investment in ICT by government and poor power generation. Ekundayo and Ekundayo (2009) outlined the challenges to the effective utilization of e-learning facilities in Nigerian tertiary institutions to include inadequate human resources, brain drain, staff-student ratio, lack of finance, poor infrastructural provision, electricity challenge, ICT and bandwidth constraints, highly bureaucratic management systems, digital divide and political instability. Contributing, Adelekan and Ilechukwu

(2013) and Keechi, et – el (2017) mentioned high cost of e-learning hardware and other gadgets, dearth of skilled manpower for the implementation of e-learning and management of ICT infrastructure, inadequate initial lack of relevant competencies by lecturers, inadequate funding of education as well as high cost of installation and maintenance of relevant e-learning gadgets as some of the challenges facing effective teaching-learning and sustainable National development in Nigeria

3 Research Methodology

The study employed survey research design. The population of the study consisted of all the lecturers in Kaduna polytechnic, Nigeria. Simple Random sampling technique was used in selecting a sample of 150 lecturers. Structured questionnaires were used for data collection;

it was validated by the senior collogues and researchers before administering it. The researchers with the help of two research assistants distributed the questionnaires to the various academic departments and the Academic staff union secretariat. 123 copies were retrieved and found useful for the study.

4 Data Presentation and Analysis

Table 1: Types of E-learning facilities available in Kaduna Polytechnic, Nigeria

S/NO.	Types of E-learning facilities	Frequency	Percentage (%)	Mean	SD
1.	Screen touch electronic board	40	32.5%	0.33	3.59
2	Multimedia projectors/PowerPoint	90	73%	0.73	8.08
3	Computer room	91	74%	0.74	8.17
4	Off-line ordinary computer	60	49%	0.49	5.39
5	Digital Library	80	65%	0.65	7.18
6	E-mail facilities	60	49%	0.49	5.39
7	On-line/Internet computers	75	61%	0.61	6.74
8	Laptops+ modem+ flash drives,	67	54.4%	0.55	6.02
9	Mobile phone/smart phone	97	79%	0.79	8.71
10	Recommended tutor software	40	32.5%	0.33	3.59
11	Virtual classroom	40	32.5%	0.33	3.59
12	Multimedia tools like radio, CD-ROM	94	76.4%	0.79	8.44
13	Digital camera and lots of others.	81	66%	0.66	7.27

Table 1 revealed that Mobile phone/smart phone, Multimedia tools like radio, CD-ROM, Computer room, Multimedia projectors/PowerPoint, Digital camera and lots of others, Digital Library, Off-line ordinary computer and E-mail facilities are the most available types of e-learning facilities in Kaduna polytechnic with the higher mean scores of 0.49 and above while Screen touch electronic board, Recommended tutor software and Virtual classroom are the least available types of e-learning facilities in Kaduna polytechnic with the lowest mean score. This finding contradicts that of Adelabu et al. (2014) and Ahmar and Rahman (2017) who find out that e-learning facilities are not available in most schools and colleges due to poor infrastructure amenities and attitude of students and lecturers.

Table 2: The extent of availability of e-learning facilities in Kaduna Polytechnic

S/NO	Types of e-learning facilities	Extent of Availability							
		GE		ME		LE		MEAN	SD
1.	Screen touch electronic board	30	(24%)	46	(37%)	50	(41%)	1.89	1.01
2.	Multimedia projectors/PowerPoint	11	(9%)	110	(89%)	-		2.06	1.00
3.	Computer room	63	(51%)	73	(59%)	-		2.72	1.33
4.	Off-line ordinary computer	85	(69%)	53	(43%)	-		2.94	1.37
5.	Digital Library	20	(16%)	33	(27%)	-		1.02	1.56
6.	E-mail facilities	52	(42%)	65	(53%)	-		2.33	1.08
7.	On-line/Internet computers	66	(54%)	41	(33%)	-		2.28	1.06
8.	Laptops+ modem+ flash drives,	85	(69%)	43	(35%)	21	(17%)	2.94	1.53
9.	Mobile phone/smart phone	79	(64%)	46	(37%)	-		2.68	1.30
10.	Recommended tutor software	21	(17%)	14	(11%)	15	(12%)	0.86	1.72
11.	Virtual classroom	11	(9%)	10	(8%)	11	(9%)	0.52	2.07
12.	Multimedia tools like radio, CD-ROM	34	(28%)	52	(42%)	10	(8%)	1.76	1.04
13.	Digital camera and lots of others.	33	(27%)	43	(35%)	-		1.50	1.17

Key: **GE=Great Extent, ME=Medium Extent, LE=Low Extent, SD=Standard deviation**

It can be observed from Table 2 that, off-line ordinary computer and Laptops+ modem+ flash drives are available to a great extent. Computer room, mobile phone/smartphone, e-mail facilities and on-line/Internet computers are available at a medium extent. Whereas respondents stated that multimedia projectors/PowerPoint, screen touch electronic board, multimedia tools like radio, CD-ROM digital camera and lots of others, digital library, recommended tutor software and virtual classroom according to the respondents are available at a low extent. This will affects effective teaching-learning and sustainable National development in Nigeria.

Table 3: The extent of the utilisation of e-learning facilities in teaching-Learning Process

S/NO	Types of E-learning Facilities	Extent of Utilization of E-learning Facilities							
		GE		ME		LE		MEAN	SD
1.	Screen touch electronic board	14	(11%)	90	(73%)	10	(8%)	1.89	1.01
2.	Multimedia projectors/PowerPoint	25	(20%)	94	(76%)	14	(11%)	2,25	1.05
3.	Computer room	50	(41%)	37	(30%)	10	(8%)	1.90	1.01
4.	Off-line ordinary computer	25	(20%)	70	(57%)	11	(9%)	1.84	1.02
5.	Digital Library	50	(41%)	50	(41%)	12	(10%	1.90	1.01
6.	E-mail facilities	40	(33%)	50	(41%)	10	(8%)	1.87	1.01
7.	On-line/Internet computers	18	(15%)	25	(20%)	-		0.85	1.73
8.	Laptops+ modem+ flash drives,	44	(36%)	30	(24%)	13	(11%	1.67	1.08
9.	Mobile phone/smart phone	30	(24%)	14	(11%)	9	(7%)	1.03	1.55
10.	Recommended tutor software	10	(8%)	30	(24%)	-		0.73	1.85
11.	Virtual classroom	20	(16%)	30	(24%)	10	(8%)	1.06	1.53
12.	Multimedia tools like radio, CD-ROM	33	(27%)	33	(27%)	8	(6%)	1.68	1.07
13.	Digital camera and lots of others.	44	(36%)	30	(24%)	20	(16%	1.97	1.00

Key: GE=Great Extent, ME=Medium Extent, LE=Low Extent, SD=Standard deviation

It can be seen from the responses in table 3 that, 50 of the respondents in Kaduna polytechnic utilize Computer room and Digital Library to a great extent, 94 utilize Multimedia projectors/PowerPoint to a medium extent while 13 respondents utilize Multimedia projectors/PowerPoint and Laptops+ modem+ flash drives, to a low extent.

Table 4: the challenges encountered by lecturers in utilizing e-learning facilities in teaching-learning process.

S/NO.	Challenges of utilizing e-learning facilities	F	%	Mean	SD
1.	High cost of hardware in Nigeria,	80	65%	0.65	7.18
2.	Incessant interruption in power supply	83	67%	0.68	7.45
3.	Technophobia	50	41%	0.41	4.49
4.	Cost of computers very high	40	33%	0.33	3.59
5.	Lack of internet facilities	50	41%	0.41	4.49
6.	Slow connectivity	60	49%	0.49	5.39
7.	High import tariffs	52	42%	0.42	4.67
8.	High level of computer illiteracy	10	8%	0.08	0.90
9.	Inadequate funding	78	63%	0.63	7.01
10.	High transmission cost	60	49%	0.49	5.39
11.	Lack of Government commitment to the development of the educational sector	80	65%	0.65	7.18

Table 4 shows the responses of the respondents on the challenges encountered in utilizing e-learning facilities in teaching-learning process. It appears that, incessant interruption in power supply, High cost of hardware in Nigeria, Slow connectivity, inadequate funding, High transmission cost, and Lack of Government commitment to the development of the Educational sector were the major challenges encountered by the Lecturers of Kaduna polytechnic in utilizing e-learning facilities in teaching-learning process with 60 and above frequency. This finding agrees with that of Bibiana (2012), Allison (2014) and and Nyagorme (2017).

5 Discussion of Findings

The findings of the study revealed that Mobile phone/smart phone, Multimedia tools like radio, CD-ROM, Computer room, Multimedia projectors/PowerPoint, Digital camera and lots of others, Digital Library, Off-line ordinary computer and E-mail facilities are the most available types of e-learning facilities in Kaduna polytechnic with the with the higher mean scores while Screen touch electronic board, Recommended tutor software and Virtual classroom are the least available types of e-learning facilities in Kaduna polytechnic with the lowest mean score. This finding contradicts that of Adelabu et al. (2014) and Ahmar and Rahman (2017) who find out that e-learning facilities are not available in most schools and colleges due to poor infrastructure amenities and attitude of students and lecturers, hence, this will affects effective teaching-learning and sustainable National development in Nigeria. While in the level of availability off-line ordinary computer and Laptops+ modem+ flash drives are available to a great extent. Computer room, mobile phone/smartphone, e-mail facilities and on-line/Internet computers are available at a medium extent. Whereas respondents stated that multimedia projectors/PowerPoint, screen touch electronic board, multimedia tools like radio, CD-ROM digital camera and lots of others, digital library, recommended tutor software and virtual classroom according to the respondents are available at a low extent, this finding is in line with that of Ezenwafor, Okeke, and Okoye, (2014) conducted a research on the Utilization of E-Learning Resources For Instruction by Technology and Vocational Educators in Tertiary institutions in South -East Nigeria the findings revealed that, the respondents utilize e-learning resources to a low extent. It appears that, incessant interruption in power supply, High cost of hardware in

Nigeria, Slow connectivity, inadequate funding, High transmission cost, and Lack of Government commitment to the development of the educational sector were the major challenges encountered by the Lecturers of Kaduna polytechnic in utilizing e-learning facilities in teaching-learning process with 60 and above frequency. This finding agrees with that of Bibiana (2012) and Allison (2014), Adelekan (2013) and Ilechukwu (2013), Adelabu, adu and Adjorgri (2014), Keechi, et – el (2017) and Anggrainningsih, Umam and Setiadi (2018).

6 Conclusion

Based on the major findings of the study, it was concluded that, Mobile phone/smart phone, Multimedia tools like radio, CD-ROM, Computer room, Multimedia projectors/PowerPoint, Digital camera and lots of others, Digital Library, Off-line ordinary computer and E-mail facilities 60 (49%) are the most available types of e-learning facilities in Kaduna polytechnic but they were utilised at medium and low level respectively. This will definitely affect the teaching-learning process and consequently this will affect the attainment of the aims and objectives of the polytechnic as well as the Sustainable National Development. Hence, lecturers in Kaduna polytechnic should try as much as possible to make the maximum use of the available e-learning facilities if they want be relevant in the 21st century information/knowledge society and for effective teaching-learning and sustainable National development in Nigeria.

Recommendations

In line with the findings of the study the following recommendations were made:

1. The National Board for Technical Education together with the management of Kaduna polytechnic should try to provide more e-learning facilities such as Screen touch electronic board, recommended tutor software and Virtual classroom and motivate the lecturers to utilize them to the great extent for effective teaching-learning and sustainable National development in Nigeria.
2. The management of Kaduna polytechnic and other relevant stakeholders should try to organise seminars and conferences on the important of utilising e-learning facilities in teaching-learning process for effective teaching-learning and sustainable National development in Nigeria.
3. Government agencies such as The National Board for Technical Education, Power holding company, National information Technology Development Agency etc should be more committed toward the development of Science and Technical education, provide steady and constant power supply, subsidized e-learning facilities as well as, provide adequate bandwidth and internet connectivity for effective teaching-learning and sustainable National development in Nigeria.

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