

AVAILABILITY AND UTILIZATION OF E-LEARNING IN COMPUTER EDUCATION PROGRAMME FOR INSTRUCTIONAL DELIVERY IN TERTIARY INSTITUTION.

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Abstract

This study was carried out to ascertain the availability and extent of utilization of e-learning in Computer Education programme for instructional delivery. Three research questions and one null hypothesis were formulated to guide the study. The study adopted descriptive survey research approach. The population for the study was 22 lecturers. This comprised of 13 male and 9 female lecturers from the Department of Computer Education, University of Nigeria, Nsukka and Department of Computer Education, The College of Education Nsukka. No sampling was done since the population size was considered manageable by the researchers. The instrument used for the study is a structured questionnaire of 4-point rating scale type made up 33 questionnaire items. The instrument was validated by three experts from the department of Computer and Robotics Education, University of Nigeria, Nsukka. Data collected was analyzed using percentage, mean, and standard deviation to answer the research questions, while t-test for independent samples was used to test the hypothesis at 0.05 level of significance. The findings on the research question one indicated availability of 2 e-learning tools such as computers and projectors out of 10 items while others are such as radio, Television among others are not adequately available, The findings on the research question two indicated that all the 10 items were moderately utilized which included computers and printers among others, The findings on the research question three indicated that 12 out of 13 items were accepted as a barrier to e-learning utilization and these included inadequate skilled lecturers and poor power supply, among others while the findings on testing the hypothesis indicated that there is no significance difference in the mean ratings of the responses of male and female lecturers on the extent of utilization of e-learning in Computer Education programme for instruction delivery. It was recommended among others that, Lecturers should be sent for in-service training, seminars and workshops on how to incorporate e-learning mode of instruction to their teaching-learning processes.

Keywords: *E-learning, Instructional Delivery, Information and Communication Technology, Computer Education*

Introduction

Information and Communication Technology (ICT) has made significant impact in educational activities. Over the years, methods of instructional delivery has witnessed various changes ever since the integration of ICT in instructional delivery, most countries of the world are competing to keep up with technological changes (Bates & poole, 2003) and to that effect, changes in pedagogical innovation in one country will bring about changes in other countries as argued by Ugwu and Aleke (2012). The use of electronic learning is gaining ground all over the world in

educational system. Ayoade and Raji (2006) emphasized on the importance of ICT and asserted that ICT can be used in many ways and its integration into educational settings depend largely on lecturers instructional goals. Due to constant pedagogical innovations in education sectors, it becomes necessary to restructure or modify the traditional method of instructional delivery of most of the courses such as Computer Education offered in the tertiary institutions for flexibility and accessibility (Ajadi, Salawu & Adeoye, 2008).

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Computer Education is one of the courses offered in most tertiary institutions in Nigeria which is aimed at equipping the students with the teaching methodology as well as necessary skills for self reliance aimed at reducing the high level of unemployment in the country (Adekola, Allen, Olawole-Isaa, Akanbi, 2016; Brown, 2005), in order to make learning more interactive and effective it becomes imperative to fully integrate e-learning as medium of instructional delivery in computer education. Recent developments in technology, globalization and changing demand for new skill sets in the job market have necessitated a need for a new teaching and learning paradigm in which ICT is deployed to enhance instructional delivery through the utilization of e-learning. (Brill & Gallaway, 2007)

Electronic learning, popularly known as e-learning, is increasingly becoming acceptable in tertiary institutions all over the world as method of instructional delivery (Evaress & Laura, 2011). This is as a result of the

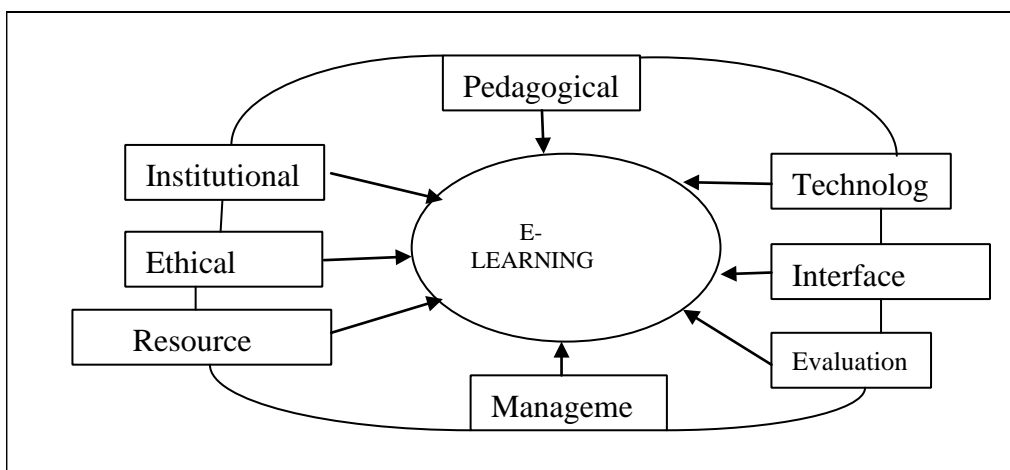
teaching/learning and research in education (Eteng & Ntui, 2009). In this era of ICT, there is growing concern for the use of ICT resources such as the computer, scanner, printer, Intranet, Internet, e-mail, videophone systems, teleconferencing devices, wireless application protocols (WAP), radio and microwaves, television and satellites, multimedia computer, softwares and multimedia projector, among others in instructional delivery method in tertiary (Johnson, 2012; Nwana, 2012). With elearning, there is a shift from the traditional approach of teacher-directed to modern methods where computer technology plays an important role, thereby improving the quality, efficiency and effectiveness of teaching, learning, research and educational management (Onyenike, 2010). Offorma, Eze & Egbe, (2008) argued that the availability of the elearning tool is very paramount to ensure maximum utilization in instructional delivery

E-learning as a sub-system within ICT, is the electronic process which enhances the instructional delivery taking into consideration

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opportunity provided by institutions and more students that are taking part in it (Organization of Economic Co-Operation and Development (OECD, 2005). Electronic learning is basically the use of information and communication technologies (ICTs) to enhance and support

the following concepts; pedagogy, technology, interface, evaluation, management, resources, ethical and institutional, all geared towards providing learning opportunities for individual performance and development.(Rydhagen and Trojer, 2016) This is provided for by what is



(Architecture of E-Learning developed by the re searcher)

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often called the e-learning architecture, which refers to the hardware, software and

connectivity components required to facilitate learning (Okure, 2008).

From Figure 1, pedagogical dimension addresses the issues relating to teaching and learning while the technology dimension takes care of technology infrastructure. Interface design according to Boghikian & Mortagy (2008) encompasses the web page and site design and the evaluation looks at both the assessment of learners with evaluation of instructional environment. Management of e-learning refers to maintenance of learning environment and distribution of information. Resource support examines the online support and resource required to foster meaningful learning environment. The ethical dimension of e-learning relate to social, political, cultural, geographical, learner diversities and information accessibility with the legal issues. The institutional dimension is focused on the issues of administrative affairs, academic affairs and students services related to e-learning. The considerations of these issues are very paramount for the utilization of e-learning instructional delivery in Computer Education programmes not.

process (Adeosun & maduekwu, 2008). Nwagbo & Ugwuanyi (2011) cited in Agboeze, Ugwoke & Onu (2012) stated that many institutions around the world now utilize e-learning technologies as a complement for teacher-led oncampus teaching and tutorials. They also observed that institutions in Nigeria have recognized the use of e-learning technologies as one of the effective and flexible alternative instructional delivery method for education. Based on the advantages e-learning offers in instructional delivery it becomes necessary to investigate the availability and extent of utilization in computer Education programme for instructional delivery.

Statement of the Problem

The world is technologically getting advanced. It is sometimes referred to as a global village. The rationale for this assertion is attributed to the Impact of information and communication technology. Elearning is fast becoming popular and a method of instructional delivery in Computer Education, most especially in tertiary institutions. In Nigeria, its usage as instructional method of teaching and learning in Computer Education programme of tertiary institutions needs to be emphasized in line with what is obtained in other part of the world. Pedagogic application of ICT entails effective learning with the help of computer, internet and other ICT facilities which serve as learning aids. Technologies such as e-learning facilitate and promote learning at a distance, and on one's own and pace possible. Modeling, simulation, use of data base, guided instruction, closed world exploration results, in changes in terms of teaching strategy, instructional content, role of the teachers and context of the curricular is

The National Policy on Education (FRN, 2004.17) places emphasis on the provision and utilization of information and communication technology (ICT) when it states that —in recognition of the prominent roles of information and communication technology in advancing knowledge and skills necessary for effective functioning in the modern world, there is urgent need to integrate information and communication technology (ICT) into education in Nigeria]]. Educational institutions are getting much more interested in improving their programme with ICT tools and applications to introduce flexibility in the teaching and learning

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made obvious and inevitable in implementing in E-learning. Furthermore, utilization of e-learning tools and technologies enhances student's motivation, help recall previous learning, and provide new instructional stimulus for the learners. However, there are inadequate e-learning tools and technologies that are necessary for Computer Education programme instructional delivery. In addition, many teachers and students do not possess the adequate skills and competency in the utilization of e-learning for impacting Computer Education courses. The light of the above observations inspired the researcher's curiosity to investigate the availability of e-learning tools, extent of utilization of e-learning and barriers to e-learning technologies in Computer Education programme instructional delivery in Nigeria tertiary institutions.

Purpose of the Study

The major purpose of the study is to ascertain the utilization of e-learning in Computer Education programme instructional delivery. Specifically, the study seeks to determine the

1. availability of e - learning tools in Computer Education Programme for instructional delivery
2. extent to which e-learning tools are utilized in Computer Education Programme for instructional delivery
3. barriers to e - learning utilization in Computer Education programme for instructional delivery

Research Questions

The following Research questions were posed to guide the study

1. What are the availability of e-learning tools in Computer Education programme for instructional delivery?

2. To what extent is e-learning utilized in Computer Education programme for instructional delivery?
3. What are the barriers to e-learning utilization in Computer Education programme for instructional delivery?

Hypotheses

The following null hypothesis was tested at 0.05 level of significance:

HO₁: There is no significance difference in the mean ratings of the responses of male and female lecturers on the extent of utilization of e-learning in Computer

Education programme for instructional delivery

Methodology

In carrying out the study, the researcher made use of descriptive survey design. The study was carried out in Nsukka. Three research questions were posed to guide the study with one hypothesis. Population of the study comprised of 22 lecturers (14 from University of Nigeria and 8 from Colleges of Education). The entire population consisting of 13 male and 9 female was used for the study. No sampling was done since the population size was considered manageable by the researchers. The instrument used for the study is a structured questionnaire of 4-point rating scale type made up 32 questionnaire items. The instrument was face validated by experts in department of Computer Education. The data collected were analyzed using percentage availability and non - availability for research question one and weighted mean was used to answer research question two and three. The cut off point for acceptance of availability of e-learning tool is 50% and above for research question one and mean of 2.5 and above is upheld and below 2.5

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is rejected for answering research question two and three. In testing the hypothesis, where the significance value of F- calculated was greater than the level of significance (0.05) at which the hypothesis was tested, then, there was no significance difference existing in the responses of the respondents and the hypothesis was upheld, otherwise, it was not upheld.

Results

Table 1: Percentage of the availability of e-learning tools

S/N	Item	Availability %
1	Computers	60
2	Scanners	40
3	Projectors	50
4	Photocopiers 30 5 Television	7
6	Radio	5
7	Software	18
8	Digital Cameras	6.5
9	Storage Facility	40
10	Printers	23

Result from Table I shows that e-learning items number 1 and 3 are the available e-learning tools in the department of Computer Education for instructional delivery. The other items are not adequately available.

Research Question 2

To what extent is e-learning utilized in Computer Education programme for instructional delivery?

Unavailability %	Decision
40	Availability
60	Unavailability
50	Availability
70	Unavailability
93	Unavailability
95	Unavailability
82	Unavailability

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93.5	Unavailability
60	Unavailability
77	Unavailability

HO₁: There is no significance difference in the mean ratings of the responses of male and female lecturers on the extent of utilization of e-learning in Computer Education programme for instructional delivery Data for answering this research question and testing the hypothesis is as shown in Table .

Table 2: Mean Ratings and t-test statistics of the responses of male and female lecturers on the extent of utilization of e-learning in Computer Education programme for instructional delivery?

S/N	Item	\bar{X}_M	\bar{X}_F	\bar{X}_G	SD _M	SD _L	P-value	Decision	
								RQ	HO
14	Computers	2.04	3.0	2.52	1.26	1.00	0.00	ME	S
15	Scanners	2.39	3.05	2.72	1.15	1.02	0.27	ME	NS
16	Projectors	3.08	2.89	2.98	0.90	0.93	0.81	ME	NS
17	Photocopiers	3.13	3.10	3.11	0.91	0.87	0.90	ME	NS
18	Television	2.17	2.89	2.53	1.23	1.10	0.11	ME	NS
19	Radio	2.43	3.00	2.71	1.12	0.81	0.01	ME	S
20	Software	3.26	2.78	3.02	0.86	1.13	0.08	ME	NS
21	Digital Cameras	3.26	3.00	3.13	0.68	1.00	0.19	ME	NS
22	Storage Facility	3.21	3.05	3.13	0.99	1.02	0.91	ME	NS
23	Printers	3.08	3.15	3.11	0.94	0.83	0.94	ME	NS
	Cluster Information	2.80	2.99	2.90	1.00	0.97	0.42		

Key: \bar{X}_F & \bar{X}_L = Mean for male and female Lecturers, \bar{X}_G = grand mean, SD_M & SD_F = Standard deviation for male and female lectures, S= Significant, NS= Not Significant

The data presented in Table 2 above showed that the grand mean ratings of the responses of the respondents on the 10 items in the table ranged between 2.52 to 3.13 on 4-point rating scale. This indicated that the respondents agreed to a moderate extent that all the 10 identified items are utilized by lectures in Computer Education programme for instructional delivery. The table also showed that the standard deviation of the items is within the range of 0.68 – 1.26; this indicated that the mean values of the respondents were not far from one another in their responses. The table also

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shows that the significant values of the items ranged from 0.08 - 0.94 for 8 items which are greater than 0.05 level of significance. This shows that the null hypothesis is upheld for those items. The p-values on the remaining 2 items in the table were between 0.00 to 0.01 which are less than 0.05 level of significant. This indicated that null hypothesis is rejected for those items. Table 2, further revealed that the mean value is 2.90 on the cluster information which indicated that e-learning is moderately utilized by lecturers in Computer Education programmes for instructional delivery and the data in table 2 also revealed that cluster information had Sig value as 0.42 and is greater than 0.05 indicating that null hypothesis is upheld.

Research Question 3

What are the barriers to e-learning utilization in Computer Education programme for instructional delivery?

Table 3: Mean rating on the barriers to e-learning utilization in Computer Education programme for instructional delivery.

S/N	Item	N	X	SD	DECISION
11	Inadequate of skilled lecturers	22	2.6	1.2	Accepted
12	Poor supervision	22	2.6	1.0	Accepted
13	Inadequate e-learning infrastructure	22	3.3	0.7	Accepted
14	Poor supervision	22	3.4	0.7	Accepted
15	Poor internet connectivity	22	2.7	1.1	Accepted
16	Poor funding	22	2.8	1.0	Accepted
17	Lack of information on existing software	22	2.2	1.2	Unaccepted
18	Resistance to change	22	2.8	0.9	Accepted
	Government inability to enforce policy implementation	22	3.1	0.9	Accepted
	Inadequate technical support	20	3.2	0.8	Accepted
21	Poor power supply	22	3.0	0.9	Accepted
22	E-learning increases staff workload	22	3.2	0.9	Accepted
23	Traditional method is best for TVET delivery	22	2.8	0.9	Accepted
	Cluster Information		2.9	0.93	

Key: N = Sample size, X = Mean of the responses, SD = Standard Deviation.

The data presented in Table 3 above showed that the mean ratings of the responses of the respondents on the 13 items in the table ranged between 2.60 to 3.40

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on 4-point rating scale. This indicated that the respondents accepted that 12 out of 13 identified items are barriers to utilization of e-learning in Computer Education programme for instructional delivery while the remaining item is unaccepted as a barrier to e-learning. The table also showed that the standard deviation of the items is within the range of 0.7 – 1.1; this indicated that the mean values of the respondents were not far from one another in their responses.

Discussion of the Findings

The findings of the study are discussed in relation to the research questions and the null hypothesis that guided the study. The findings of the study regarding the availability of e-learning tools in Computer Education programme for instructional delivery as presented in Table 1 showed that only computers and projectors are the tools available. Others such as printers, scanners among others are inadequate for instructional delivery. The findings of this study are in line with (Onyenike, 2010) who stated that ICT infrastructures and human resources necessary for effective utilization of e-learning as mode of instructional delivery is lacking. The result is also in agreement with the findings of Offorma, Eze and Egbe (2008) that what is lacking in schools to a large extent are ICT materials.

The findings of the study regarding the to what extent is e-learning tools are utilized in Computer Education programme for instructional delivery clearly indicated lecturers have not yet maximized the potentials of e-learning in their day to day teaching activities owing to inadequacy of the e-learning tools. The table shows that lecturers have moderately utilized e-learning in computer Education for instructional delivery. This is in agreement with Adeosun and Maduekwu (2008) which stated that e-learning utilization in tertiary institutions are not highly utilized due to non availability of e-learning tools and teacher's poor skill on the use of ICT gadgets. The hypothesis also revealed that male and female lecturers do not differ significantly in their opinions on the extent of utilization of e-learning in Computer Education programme for instructional delivery. This means that the null hypothesis was upheld.

The findings of the study on research questions 3 which deals with the barriers to e-learning utilization in Computer Education programme for instructional delivery revealed that lecturers agreed that inadequate skilled lecturers, Lack of time on the part of the lecturers to engage in training in the use of e-learning tools, Inadequate e-learning infrastructure, Poor supervision, among others are the major hindrance to the utilization of e-learning in Computer Education programmes for instructional delivery. The study supports Brown (2005) who also attributed these barriers to economic disadvantages and government policies.

Conclusion

E-learning platforms play an important role in helping tertiary institution to optimize the benefit of globalization. It believes on computer teachers in tertiary institutions to come to grasp with the complexities using web-based, networked technologies of e-learning in teaching computer courses.

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This will expand the capacity of computer programme and computer educators to continue to fulfill their mission which includes the training of necessary manpower to meet up the current needs of the labour market which comprises classroom, industry, public and private businesses. Efforts should be made towards tackling other factors that are militating against the usage of e-learning infrastructures. It is appropriate to say that e-learning has come to stay under the preview of computer education and the only option is to embrace it.

Recommendations

In view of the findings of this study the following recommendations are enumerated for educational stakeholders to consider for effective utilization of elearning in Computer Education programmes:

1. Tertiary institutions need to embark a strategic plan for e-learning initiative involving internet connectivity and acquisition of personal computer (PC), laptop computer, and multimedia facilities etc placement of these facilities for equitable use.
2. Educational policy makers should provide internet facilities in the schools for the use of lecturers and also of students in order to undertake their e-learning activities.
3. Lecturers should be well trained in specific methods in which they could apply electronic devices to enhance instructional delivery. This could be achieved by contracting experts to develop curricular for training process
4. Lecturers should be sent for in-service training, seminars and workshops on how to incorporate e-learning mode of instruction to their teachinglearning processes.

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