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Assessment of the Optimization of E-Learning Facilities to Lecturers and Students in Nigeria Federal Colleges of Education

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Abstract

The study assessed the optimization of e-learning facilities to lecturers and students in Federal Colleges of Education in North West Zone of Nigeria. A descriptive survey was used. The population comprised all the lecturers and students in five (5) Federal Colleges of Education in the zone – numbering about 3,650 academic staff and 6,950 students. Simple random sampling was used to select 1060 subjects in the five colleges; 365 academic staff and 695 students. The instrument was a 50 – item questionnaire developed by the researchers. The instrument was validated and reliability coefficient was computed. Three research questions and three hypotheses guided the study. Data were analyzed using mean and standard deviation while hypotheses were tested using t-test statistics at 0.05 level of significance. Results showed that most e-learning facilities are not available while the few available ones were not accessible to lecturers and students. Obstacles to the accessibility of e-learning facilities were also identified. The study also revealed no significant difference in the opinion of lecturers and students on what constituted problems of having access to the few available e-learning facilities. In view of the findings of the study, recommendations were made among which is, that the Federal Colleges of Education should provide e-learning facilities to promote teaching and learning activities.

Key words: assessment, e-learning, availability, accessibility and obstacles to e- learning

Introduction

A man can only create something of which he has a vision; for everything that is now proved was once only imagined. To actually acquire knowledge, skills, attitudes and competencies in education, one has to think about what the educational outcome (product) would look like. The system of education needs to be revolutionalized to embrace Information and Communication Technology (ICT) and e-learning as tools so as to bring about individuals that would effectively fit into the work force in this 21st century (Ifeakor & Okoli, 2011). The rapid growth and development of ICT has opened up opportunities and possibilities for individuals and learning programmes globally through the internet.

Electronic learning or e-learning is the delivery of education (all activities relevant to instructing, teaching and learning) through various electronic media. E-learning comprises all forms of electronically – supported learning

and teaching which aim at effecting the construction of knowledge with reference to individual experience, practice and knowledge of the learner. According to Otuka (2011), e-learning is essentially the computer and network-enabled transfer of skills, knowledge, attitudes and competencies. E-learning refers to using electronic applications and processes to teach and learn. E-learning applications and processes include computers, web-based learning, computer-based learning, virtual classrooms, digital collaborations, flash, cell phones. The power of e-learning is in its content and delivery. Content is delivered via the internet, intranet/extranet, audio or video tape, satellite TV, CD-Rom in addition to print materials. E-learning can either be synchronous or asynchronous. Synchronous means that the real time communication is implemented such as video conferencing, teleconferencing and on-line chat programme. Asynchronous indicates that other means of communication that are utilized do not require real time response. Examples include: e-mail, blogs, on-line forums.

The Nigerian Certificate in Education (NCE) is a sub-degree but highly qualitative professional teacher education diploma obtained after a three – year fulltime programme in a College of Education. It is therefore a more qualitative and specialized teacher's certificate than the Teachers Grade Two Certificate. This makes it imperative for the products from Colleges of Education in Nigeria to be of a very high quality when lecturers and students are made to have access to available e-learning facilities.

The introduction of e-learning has indeed revolutionalized teaching and learning process at all levels of our educational system by making knowledge more accessible to all. This knowledge is highly needed in colleges of education where lecturers teach the would-be-teachers (pre-service teachers). Eze in Obikeze & Onyechi (2011) noted that teaching and learning based on ICT and e-learning play crucial roles in the development of a life long learning culture and has the capacity to empower learners by providing them with multiple pathways to meet their education and training needs. Nigeria as a nation must strive to join other nations in the global standards. Nigeria should emulate other developing countries of the world such as China, India, Malaysia, South Korea, Singapore among others who used ICT and e-learning to fast track their educational and economic development.

Research literature (Cornu, 2002, Olorundare, 2006 and Onuma, 2007) revealed that advanced and developing countries have attested to the fact that e-learning and ICT are central focus for the educational policies, for use and

integration in school curriculum. Despite this, the Nigerian education system has not adequately exposed teachers and students and even the institutions of learning to the realities of e-learning tools, skills and competencies that would prepare them to face the challenges of the global world of internet and knowledge sharing within the shortest possible time. Because of the relevance of e-learning and ICT to teachers and students in teaching and learning, it is argued that teachers and students should be adequately prepared, trained and equipped with relevant e-learning tools and skills to effectively harness the advantages.

To develop the skills, knowledge, competencies and attitudes needed in this 21st century, to ensure that teachers and students have the digital literacy skills required in their discipline, profession or career, the pedagogical implications/advantages of e-learning is of utmost importance. They are according to Anowor (2011):

- e-learning facilitates the task of the teacher by promoting performance enhancement and independent study among students.
- it enables teachers and students to study at their own pace and convenience.
- it reduces the stress inherent in the conventional classroom work for both teachers and students.
- it facilitates access to existing knowledge, skills and competencies.
- it is cost-effective and time-saving.

Other advantages of e-learning as enumerated by Otuka (2011) are:

- Class work can be scheduled around personal and professional work.
- Learners may have the option to select learning materials that meet their level of knowledge and interest
- Learners can study wherever they have access to a computer and interest.
- Different learning styles (e.g. self-regulatory learning) are addressed and facilitation of learning occurs through varied activities

self-knowledge, self confidence and encourage teachers to take responsibility for their teaching and students for their learning.

In most tertiary institutions and colleges of education in particular the traditional methods of teaching with chalk and board and with students

learning passively are still very predominant. Some lecturers still use chalk, chalkboard and lecture notes to teach their courses. These traditional methods make teaching and learning very boring and cumbersome. The unavailability of e-learning facilities in some tertiary institutions have made teaching and learning enterprise an uphill task (Obikeze & Onyechi, 2011). To crown it all, in some institutions where the e-learning facilities are skeletally available, they are never made accessible to lecturers and students (Onuma, 2007). In spite of all the benefits associated with the flexibility and access to wide range of resources that e-learning allows, there is still need to find out the availability and accessibility of e-learning facilities to lecturers and students of Federal Colleges of Education in North West Zone of Nigeria. Furthermore, there is need to find out obstacles militating against lecturers and students access to e-learning facilities.

The availability and accessibility of e-learning facilities to teachers and students of colleges of education has not been fully realized. These are as a result of some bottlenecks indentified by Ezeom & Akiti (2010) and Okoli & Ifeakor (2011). They are problem of poor electricity supply; most teachers and students find it difficult to accept innovations hence they remain conservative; slow or unreliable internet connections; high cost of e-learning facilities; government support to education particularly higher institution is very low; lack of qualified personnel; poor attitude to e – learning; low ICT and e-learning literacy level of both teachers and students etc. The ability of lecturers and students to have access to e-learning facilities will no doubt enhance their understanding thereby helping them to acquire the skills, knowledge and competences needed for technological breakthrough in this 21st century. It is against this background that this study was conceptualized.

Purpose of the Study

The general purpose of the study was to assess the availability and accessibility of e-learning facilities to lecturers and students in Federal Colleges of Education in North West Zone of Nigeria. Specifically, the study sought to:

1. assess the availability of e-learning facilities to lecturers and students of Federal Colleges of Education (FCE).
2. assess the accessibility of e-learning facilities to lecturers and students of Federal Colleges of Education.
3. identify possible obstacles to the accessibility of e-learning facilities to lecturers and students of FCE.

Research Questions

The following questions were asked to guide the study:

1. What are the e-learning facilities available to lecturers and students in FCE?
2. To what extent are e-learning facilities accessed by lecturers and students of FCE?
3. What obstacles militate against lecturers and students access to e-learning facilities in FCE?

Null Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance:

1. There is no significant difference between the responses of lecturers and students of FCE on the available e-learning facilities.
2. The mean responses of lecturers and students of FCE on the extent of accessibility of e-learning facilities would not differ significantly.
3. The mean responses of lecturers and students of FCE on the obstacles militating against their accessibility of e-learning facilities would not differ significantly.

Research Method

Design

The researchers adopted a survey design for the study. According to Ozibo (2005), survey as a research technique permits the description of conditions as they exist in their natural setting. It is also a measure of public opinions on major burning social, political and educational issues (Ali, 2006). The above two attributes of survey met the requirements of the researchers, hence the justification for the use of survey.

Area of Study

The area of the study is the North West Zone of Nigeria (out of six zones in

seven states are; Jigawa, Kaduna, Kano, Katsina, Kebbi, Sokoto and Zamfara.

Population of the Study

The target population of the study comprised all the lecturers and students in five (5) Federal Colleges of Education in the zone. They are:

	Name	Lecturers	Students
1.	FCE Zaria, Kaduna State	775	1,320
2.	FCE Kano, Kano State	920	2,040
3.	FCE Kastina, Katsina State	690	1,150
4.	FCE Sokoto, Sokoto State	685	1,180
5.	FCE (Technical) Gusau, Zamfara State	580	1,260
		3,650	6,950

These were made up of 3,650 lecturers and 6,950 students across the colleges.

Sample and Sampling Techniques

The sample consisted of 10% of both lecturers and students to give 365 lecturers and 695 students in the five Federal Colleges of Education making a total of 1,060 subjects. Simple random sampling technique with replacement was used to select the sample.

Instrument for Data Collection

The instrument used for data collection was a questionnaire constructed by the researchers titled "Optimization of the Availability and Accessibility of e-learning facilities Questionnaire (OAAEEQ)". The instrument was structured to elicit information on very high available = 5points, High available = 4 points; Moderately available = 3 points; Not available = 2 points and Highly not available = 1point. In the case of accessibility, the instrument was structured thus; very high accessible = 5 points; High accessible = 4 points; Moderately accessible = 3 points, Not accessible = 2 points; Highly not accessible = 1 point.

Validation of the Instrument

The instrument was validated by one expert in Measurement and Evaluation from Anambra State University, Uli. One expert in Computer Science from Ahmadu Bello University, Zaria also made some inputs. They were given the instrument, purpose of the study and research questions. They were asked to validate the instrument based on ambiguity of statement, comprehensiveness, adequacy and relevance to the set objectives of the study and content coverage. Inputs from the experts led to some modifications.

Reliability of Instrument

The instrument was trial-tested on 20 lecturers and 50 students of Federal College of Education (Technical) Umunze, Anambra State. Using Cronbach Alpha formula, the reliability coefficient of internal consistency was computed to be 0.87.

Procedure for Data Collection

The researchers trained five research assistants and deployed each of them to one of the five colleges respectively. This act facilitated the administration of the questionnaire to both lecturers and students. The researchers did the collation work and finally 1,045 questionnaires (355 from lecturers and 690 from students) were correctly and completely filled.

Method of Data Analysis

The data were analyzed using means and standard deviation (SD) for research questions, while t-test statistics was used to test the null hypotheses at 0.05 level of significance. The acceptance level for the research questions is 3.00 and above.

Results

The results are presented in the tables below:

In table 1, lecturers revealed that seven items (1, 2, 3, 7, 12, 14 and 16) obtained mean ratings above the acceptance mean of 3.00 indicating availability of some e-learning facilities. On the other hand, 13 items (4, 5, 6, 8, 9 – 11, 13, 15, 17 - 20) obtained mean ratings below 3.00 showing non-availability of e-learning facilities. Meanwhile, students showed that only four items (1, 3, 7 and 12) obtained mean rating above 3.00 while 16 items (2, 4 – 6, 8 – 11, 13 - 20) obtained mean rating below 3.00. This is an indication that some e-learning facilities which are available to lecturers are not available to students. Judging on the whole most e-learning facilities were neither available to lecturers nor to students.

In table 2, all the items had mean ratings below 3.00 for both lecturers and

Table 3 indicated that both lecturers and students agreed to 8 items (items 41, 43 – 48, 50) with mean of 3.00 and above but disagreed to two items (42 and 49) which have mean below 3.00. This result showed that lecturers and

students show similar opinion on what constitutes the obstacles of having access to e-learning facilities.

Table 4 showed that t-calculated was 3.52 against t-critical which is 1.96 at 1,043 and 0.05 level of significance. This revealed that t-calculated is greater than t-critical and as such the null hypothesis of no significant difference was rejected. That is to say, that there are differences in the opinions of lecturers and students on the availability of e-learning facilities.

Table 5 indicated that t-calculated (-2.76) is less that t-critical (1.96) at 1043 df and 0.05 alpha level. The t-calculated is less than t-critical. Therefore the null hypothesis of no significant difference on the accessibility of e-learning facilities to lecturers and students was not rejected.

Table 6 revealed that t-calculated (o.49) is less than t-critical (1.96) at 1043 df and 0.05 level of significance. Hence we fail to reject the null hypothesis of no significant difference on the obstacles facing lecturers and students on their access to e-learning facilities.

Discussion

The findings of this study revealed that most e-learning facilities are not available at FCE in North West Zone of Nigeria. Lecturers and students have different views about the items that are available to them. Lecturers identified seven items while students identified only four items out of twenty on the list. The findings of this study are in consonance with the studies of Cornu (2002) and Obikeze & Onyechi (2011) who observed that the e-learning facilities in most of our colleges of education are not sufficient to satisfy the increasing ICT demands of both lecturers and students. There is no doubt to say that the availability of e-learning facilities would prepare lecturers and students to face the challenges of the global world of internet and knowledge sharing. Also hypothesis one result of both lecturers and students indicated that there is a significant difference in their mean rating on the availability of e-learning facilities. This might be as a result of students restrictions to some e-learning that make them not to be aware of availability

The study also revealed that both lecturers and students have little or no access to e-learning facilities. It was revealed that the most prominent e-learning facilities such as printers, flash, tape recorders, radio, internet facilities, intercom service and so on were not accessible to lecturers and students. The t-test statistics of the respondents revealed no significant difference in the mean responses of both lecturers and students on the

accessibility of e-learning facilities. This result is in line with the ideas of Cornu (2002), Olorundare (2006) and Onuma (2007) who revealed that Nigerian education system has not adequately exposed lecturers and students to the realities of e-learning tools, skills and competencies.

Finally, the study revealed that both lecturers and students are confronted with a lot of obstacles which have made their access to e-learning facilities an uphill task. Some of the obstacles indentified in this study by the respondents are; problem of poor electric supply, slow or unreliable internet connections, high cost of e-learning facilities, and government support to education is very low, lack of qualified personnel, poor attitude to e-learning, low ICT and e-learning literacy level of both lecturers and students among others. The findings of this study are in consonance with the view of Ezoem & Akiti (2010) and Okoli & Ifeakor (2011). These authors noted that poor electric supply, unreliable internet connectivity, high cost of e-learning facilities, government low support to education, and low ICT and e-learning literacy level of both lecturers and students are the major obstacles that hinder lecturers and students from having access to e-learning. Meanwhile, the t-test statistics also revealed no significant difference in the mean responses of lecturers and students on the obstacles militating against access to e-learning facilities.

Conclusion

The world is fast transforming and responding to changes brought about by technological advances of the information age. The introduction of e-learning to our educational system has indeed revolutionalized teaching and learning. This study assessed the availability and accessibility of e-learning facilities to lecturers and students of Federal Colleges of Education in North West Zone of Nigeria. The study showed that most e-learning facilities were not available. The unavailability of e-learning facilities may have adversely affected lecturers and students to face the challenges of the global world of internet and knowledge sharing.

have revealed that lecturers and students were never exposed to the realities of e-learning tools, skills and competencies.

This study also assessed the bottlenecks that hinder the availability and accessibility of e-learning facilities to lecturers and students. Some of the

contributing problems were as a result of some logistic problems from government, institutions themselves, lecturers and students also.

Recommendations

In view of the findings of the study, the following recommendations were suggested to help improve availability and accessibility of e-learning facilities to lecturers and students in FCE:

1. Federal government support to education is very low. The government should increase its subvention to colleges of education to enable them purchase e-learning facilities for lecturers and students.
2. The management of Federal College of Education should use any available fund to procure e-learning facilities to enhance the accessibility to lecturers and students for teaching and learning.
3. Lecturers and students attitude to innovations must change. They should accept innovations that are associated with e-learning.
4. There is need to employ trained technologists, programmers and technicians who will operate and facilitate the use of e-learning facilities.
5. The Power Holding Company of Nigeria needs to improve on their services. Educational institutions should be provided with alternative sources of energy like standby generators and solar energy for powering e-learning facilities.
6. The National Commission for Colleges of Education (NCCE) should persuade and encourage lecturers and students to own and utilize computers and other e-learning facilities to improve their knowledge skills and competencies so as to fit into the world of work in the 21st century.

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Table 1: Mean and SD of Lecturers and Students on the Availability of e-learning Facilities

S/N	Available e-learning facilities	Lecturers		Students	
		$\overline{X}$	SD	$\overline{X}$	SD
1.	Computers	3.80	0.89	3.91	0.91
2.	Video tape	3.86	0.92	2.68	0.82
3.	Audio tape	3.31	0.77	3.41	0.73
4.	CD – Rom	2.18	0.66	2.61	0.51
5.	Projectors	2.06	0.65	2.71	0.83
6.	Shared whiteboard	2.47	0.65	2.40	0.63
7.	Television	3.66	0.81	3.15	0.75
8.	Instant Massaging	2.88	0.77	2.50	0.63
9.	Visual Classroom	2.30	0.69	2.35	0.71
10.	Audio/Video conference chart	2.64	0.64	2.48	0.75
11.	D.V.D player	2.81	0.81	2.25	0.70
12.	Cell phone	4.81	1.10	4.41	0.91
13.	Cyber café	2.30	0.64	2.67	0.85
14.	Printers	3.79	0.82	2.69	0.61
15.	Flash	2.88	0.70	2.41	0.54
16.	Tape recorder	4.10	1.17	2.82	0.97
17.	Radio	2.53	0.89	2.83	0.84
18.	Websites/e-mail	2.62	0.86	2.41	0.60
19.	Internet facilities	2.43	0.81	2.43	0.60
20.	Intercom. Services	2.24	0.85	2.44	0.68
		2.98	**0.80**	**2.80**	**0.73**

Table 2: Mean and SD of Lecturers and Students on the Accessibility of e-learning Facilities

S/N	Available e-learning facilities	Lecturers		Students	
		$\overline{X}$	SD	$\overline{X}$	SD
21.	Computer	2.12	1.02	3.32	1.08
22.	Video tape	2.22	0.99	2.12	0.91
23.	Audio tape	2.31	0.81	2.21	0.98
24.	CD-ROM	1.93	0.78	2.02	0.76
25.	Projectors	1.76	0.68	1.98	0.75
26.	Shared whiteboard	1.66	0.72	1.62	0.73
27.	Television	1.69	0.76	1.54	0.84
28.	Instant massaging	1.54	0.66	1.48	0.59
29.	Visual classroom	1.40	0.73	1.71	0.76
30.	Audio/Video conference chart	1.42	0.54	1.81	0.64
31.	D.V.D. Player	1.32	0.68	1.54	0.71
32.	Cell Phone	1.81	0.78	1.21	0.46
33.	Cyber café	1.21	0.81	1.44	0.50
34.	Printers	1.44	0.68	1.69	0.61
35.	Flash	1.11	0.54	1.71	0.54
36.	Tape recorder	1.12	0.56	1.61	0.56
37	Radio	1.14	0.71	1.91	0.61
38.	Websites/e-mail	1.44	0.68	1.45	0.68
39.	Internet facilities	1.44	0.72	1.24	0.72
40.	Intercom service	1.09	0.67	1.22	0.57
		1.56	**0.73**	**1.69**	**0.70**

Table 3: Mean and SD of lecturers and students on the obstacles militating against the accessibility of e-learning facilities

S/N	Problems of access to e-learning	Lecturers		Students	
		$\overline{X}$	SD	$\overline{X}$	SD
41	Problem of poor electric supply	4.17	0.81	3.96	0.91
42	Most lecturers and students find it difficult to accept innovation hence remain conservative.	2.49	0.99	2.67	0.64
43	Slow or unreliable internet connections.	4.08	0.78	4.02	0.86
44	High cost of e-learning facilities	3.99	0.74	3.12	0.75
45	Government support to education is very low.	.34	0.91	3.12	0.84
46	Lack of qualified personnel.	4.28	0.82	4.01	0.94
47	Poor attitude to e-learning.	3.61	0.67	3.39	0.76
48	Low ICT and e-learning literacy level of both lecturers and students.	3.49	0.86	3.81	0.77
49	Lack of management support from the college.	2.82	0.65	2.46	0.81
50	Lack of affordable specialized e-learning centres.	3.82	0.76	3.07	0.83
		3.61	**0.79**	**3.36**	**0.81**

Table 4: t-test statistics on the Availability of e-learning facilities to Lecturers and Students

Sources of variation	N	$\overline{X}$	SD	df	t-cal	t-crit	Decision
Lecturers	355	2.98	0.80	1043	3.52	1.96	H_o rejected
Students	690	2.80	0.73				

Table 5: t-test statistics on the Accessibility of e-learning facilities to Lecturers and Students

Sources of variation	N	$\overline{X}$	SD	df	t-cal	t-crit	Decision
Lecturers	355	1.56	0.73	1043	-2.76	1.96	H_o not rejected
Students	690	1.69	0.70				

Table 6: t-test statistics on the Obstacles facing Lecturers and Students in their Access to e-learning Facilities

Sources of variation	N	$\overline{X}$	SD	df	t-cal	t-crit	Decision
Lecturers	355	3.61	0.79	1043	0.49	1.96	H_o not rejected
Students	690	3.36	0.81				

