COMPUTER-BASED LEARNING IN OPEN AND DISTANCE LEARNING INSTITUTIONS IN NIGERIA: CAUTIONS ON USE OF INTERNET FOR COUNSELING

By

FIDEL ONJEFU OKOPI * OLAJUMOKE JANET ODEYEMI ** ADEWALE ADESINA***

** Director, NOUN (National Open University of Nigeria) Study Centre, McCarthy, Obalende, Lagos.*
*** Centre for Lifelong Learning (CLL).*
**** Educational Technologist.*

ABSTRACT

The study has identified the areas of strengths and weaknesses in the current use of Computer Based Learning (CBL) tools in Open and Distance Learning (ODL) institutions in Nigeria. To achieve these objectives, the following research questions were proposed: (i) What are the computer-based learning tools (soft and hard ware) that are actually in use in ODL institutions in Nigeria?, (ii) What are the perceived computer literacy and competency levels acquired through CBL among students of ODL?, (iii) What is the instructors' perceived effectiveness of computer-based instructional delivery in ODL in Nigeria and, (iv) what are the barriers to CBL applications?. The study adopted a descriptive survey design. Computer-Based Learning Questionnaire was used for data collection. Descriptive statistics of percentage was used for the analysis. Sample population of one thousand, sixty students and sixty staffs were selected for the research. The research specifically identified e-blackboard, Moodle and i-learn are the computer-based learning tools that were actually in use in ODL institutions in Nigeria. Intermediate and advanced computer literacy levels were identified as the self-perceived computer competency skill levels of ODL students in Nigeria. The most self-perceived effective computer applications among the instructors of ODL in Nigeria as identified by this research were for teaching, assessing students' performance across various fields of study, maintaining and tracking students' performances through Learning Management System. The research also identified the non-ownership of computer devices with internet facility, slow internet connectivity and limited access to computer, as the most difficult challenges to effective computer-based learning among the students of ODL in Nigeria and therefore recommended ways of averting these challenges, but proffered precautionary measures to be taken while using CBL for counseling.

Keywords: Computer Based Learning Tools, Open and Distance Learning Institutions, Counseling, Implications.

INTRODUCTION

For Nigeria, to provide meaningful and realistic Computer-based Learning, it must harness the existing Information and Communication Technology tools in order to enhance sustainable socio-economic development (Federal Government of Nigeria (FGN), 2012). With the introduction of Global Systems of Communication in Nigeria at 2001, millions of Nigerians can now access the internet via their GSM phones or a GSM enabled device, especially among the youths (Mutiu, 2006). According to Mutiu (2006), Nigerians on a daily basis, visit Face book, Yahoo, Gmail, Twitter, and Google sites and more people are now accessing the internet, for doing businesses online, creating more job opportunities for web developers, application developers, graphics designers, and consultants etc. More Nigerians own and have access to Information and Communication Technology tools, especially the computer and internet facility. Apart from availability and accessibility to computer based-learning tools, there is a significant improvement in computer literacy (computer knowledge, skills and attitude), especially among college age youths, making it possible for them to use computer based learning tools(Onasanya 2004). With the availability of public cyber café' and Learning Management systems in higher education institutions in Nigeria, especially in National Open University

of Nigeria, the problem of universal accessibility to computers seems to be significantly reduced.

Nowadays the use of computer in distance education in Nigeria has become popular with increasing emphasis on individualized programmes of instruction and rising development of computer technology learning at all levels of education is made easier (Onasanya 2004). Also, now that the government has started equipping some secondary schools in the country with microcomputers connected to internet and with the support of Mobile Telecommunication Network (MTN), where computers can easily facilitate teaching and learning tasks (Jimoh, 2004). According to Jimoh (2004), students now have an access to Educational materials on the internet which allows them to freely participate in international academic competition, (e.g. poetry and essay competition at poetry.com and voicesnet.com etc.) and at the same time make it easier to publish one's literary work(s) irrespective of one's field of study. Jimoh further stated that, it also allows the capable people of the country to engage themselves in distance learning programmes.

Despite the relative availability of GSM phones, Computer and Internet facility, using computers as teaching and learning tools in Nigerian Educational System remains problematic (FGN, 2012). In a developing country like Nigeria, delivering instruction through the distance learning mode poses significant challenges to educators and policy makers. According to Pena-Bandalaria (2007), computers have been used within the schools both to support teaching and for school linking to other educational resources. Pena-Bandalaria further explained that, a number of critics have also pointed out that, the stand alone media based packages will never be sufficient. Pena-Bandalaria further opined that, none of the media can adequately support the discursive activities which are essential for Academic learning. Moreover, according to Valdez, McNabb, Foersch, Anderson, Hawkes and Raack(2000), the success or failure of technology use depends more on human and contextual factors rather than on hardware or software. Harris (2000) reveals that, tremendous technology potential will only be realized if we can create a new vision of how technology will change the definition of teaching and belief on how learning can take place .

Internet and broadband, capacity building and Universal access are some of the challenges facing the use of computer-based learning tools and applications in ODL in Nigeria (FGN, 2012).The choice of computer-based learning tools to learning delivery is borne out of the fact that ODL system is Education Technology driven and means of reaching the learners wherever they are. Computer-based learning, not only helps the learners to have a worthwhile learning experience, but also help them in acquiring the skills to become lifelong learners (FGN, 2012).

To achieve the aim of providing instruction through the distance learning mode, the Federal Government of Nigeria over the years initiated and adopted several ICT related policies and laws with a view to guiding the development of the sector and harnessing its power for National development. It was not until August, 2012, that Federal Executive Council approved the National Information Communication Technology Policy for Nigeria but before then, there was no robust national ICT policy for Nigeria. The approved National ICT policy therefore harmonises all the ICT related policies and laws that were earlier initiated and adopted. Implementation of ICT-related policies and laws are not without numerous challenges. These includes: Inadequate infrastructure; Legal and regulatory frame work; Universal access and services; Security and local content etc. (FGN, 2012). For the purpose of this study, radio, television telephone land, mobile, fax, voice over internet protocol, and computers are considered as ICT hardware while Learning Management Systems (LMS) are customised software. This research critically investigates the computer-based learning tools (Hardware and software) that are actually in use in ODL institutions in Nigeria, how computer enhances the learning ability of the ODL students in Nigeria, instructors' perceived effectiveness of computer-based learning in ODL in Nigeria and barriers associated with computer applications.

Computer Based Learning

Computer Based Learning means, the use of computers in

Education either to provide programmes through delivering of instruction, or facilitating communication between learner and tutor, or to enable students to have access to remote sources of information (UNESCO, 2000). Computer literacy is the ability to use computer to perform a variety of tasks that are fundamental to the learning process (UNESCO, 2000). According to Mutiu (2006), there are five cardinal points of teaching and learning with computer. These are: Computer Assisted Instruction (CAI), Computer Management Instruction (CMI), Computer Aided Design (CAD), Computer Assisted Language Learning (CALL) and Programming and Problem Solving.

Computer Assisted Instruction (CAI) is a computer instructional term used to simulate the teaching environment. While Computer Aided Instruction is used for guided drill and practice exercises, computer visualisation of complex object helps educators to track students' grades and also facilitates smooth computer communication between students and teachers. Computer Management Instruction (CMI) is used for instructional management in a webagogical and pedagogical environment (Encyclopaedia Britannica). Computer Aided Design (CAD) is used for designing, building, animating, and rendering of image bigger and clearer, et cetera. Meanwhile programming and problem-solving computers can essentially be used for developing educational programmes and solve numerous educational problems and the Computer Assisted Language Learning (CALL) is basically used for teaching and learning of languages (most especially English and Arabic).

The phenomenal increase of ICT use in education has given concomitant rise to new concepts and realities that are now reflecting current thoughts. Open and distance learning for instance, is often technologically driven or mediated or as the main mode of instructional delivery and communication, depending on the available technologies. The use of computer and internet in Open and Distance Learning is in tandem with the National Policy statement on ODL as imbedded in the National Policy on Education (1981) as revised in 2004 which stated unequivocally that, Open and Distance System of education would be technologically driven. Also in line with the same school of thought, Federal Government of Nigeria in 1987 launched the National Policy on Computer Literacy at primary, secondary and tertiary levels of Education.

With the introduction of computer and internet technologies in ODL, time and space ceased to matter in terms of academic, social and psychological interactions and transactions between staffs to students, and students to students. Technologies have fundamentally challenged the concept of teacher to include various elements like tutors, learning management systems, technical support, learning packages which are the evidence of ICT's influence on Education.

Computers and customized software in the form of Learning Management System (LMS) now constitute the bedrock of computer-based learning tools in ODL system of education. A Learning Management System (LMS) is a software application or Web-based technology used to plan, implement, and assess a specific learning process (UNESCO, 2000). Typically, a Learning Management System provides the instructor with a way to create and deliver content, monitor student participation, and assess student performance. A learning management system may also provide students with the ability to use interactive features such as threaded discussions, video conferencing and discussion forum (UNESCO, 2000)

Learning Management System ranges from managing training and educational records system to software for distributing online or blended/hybrid college courses over the internet with features for online collaboration. Colleges and universities use LMSs to deliver online courses and augment on-campus courses. Corporate training departments use LMSs to deliver online training, as well as automated record-keeping and employee registration. Westbrook (2001) has observed that, the introduction of ICT in Education has resulted in the change in four core areas: 1) Curriculum'; 2) Role of teachers and students; 3) Organizational structure; and 4) Learning environment.

Reasons for Introducing Computer to Education

In 1987, Federal Government of Nigeria launched the National Policy on Computer Literacy at Primary,

Secondary and Tertiary levels of Education with the following aims:

- For the computer to transform the school system, as there is an increased merger between the computer technology and communication; and
- To equip the individuals or students with thorough understanding of the concept of computer in order to fit into the next century.

The general objectives include:

- To bring about a computer literacy in each state in Nigeria.
- To develop the use of computer as a teaching tool in all subject areas and to familiarise students with the use of computer technology.
- To expose the teachers and students to the latest scientific knowledge and skills.

According to Perraton and Creed (2000), Commonwealth of Learning (COL) in 1991, reviewed commonwealth-wide practice, and identified four rationales for introducing computer to education. He further observed that after five years, the fifth rationale which stemmed out the development of internet communication was added. These rationales include:

1. To build all resources of people who are highly skilled in the use of Information Technology. Where Government watches information technology as a means of strengthening the economy, and want to develop a workforce with vocational skills for computer related activities and computer education, programmes have been set up to develop a cadre of people with specialist skills.
2. To equip all students for a future in which technological awareness and basic computer skills will increasingly be important to greater number of citizens. Countries which have adopted this approach believed that whether or not the country is likely to be a producer of computer hardware or software, their citizens need to be in a strong position to take advantage of technological development as they arise.
3. To use the technology to enhance the existing curriculum and to improve the way in which it is developed. Computer assisted learning programmes, in which the computer takes over some of the activity of the teacher, fall within this rationale.
4. To promote change in education by moving towards a more relevant curriculum and a new definition of the teacher's role. Some computer projects have been designed to shift the curriculum in the direction of practical learning of information handling and communication skills rather than concentration on memory.
5. To allow learners to seek information from databases, especially through the internet, and use computer technology to communicate with other schools, colleges and learning communities. This rationale opens up new learner- initiated opportunities.

Perraton and Creed (2000) explain that, rationale three, four and five hold particular significance to developing countries, especially countries operating the ODL system of education for overcoming access problems created by economic, infrastructure and geographical challenges. The pooling of resources, through community networks, resource centers, ODL study centers and Tele centers have been seen as an important way forward. He further explained that technological innovation should be sustained and needs to generate a sense of ownership among all the stakeholders. According to Perraton and Creed, training is generally needed both for specialists involved in the development of teaching materials and for teachers who are using them in their schools or adult education or extension agents in the field. National policies need to be developed in order to use new technologies cost-effectively, while avoiding widening between the information-rich and the information-poor.

Objective of the Study

The objective of this research was to identify the areas of strengths and weaknesses in the current use of Computer Based Learning tools in Open Distance Learning institutions in Nigeria, which are germane to computer based learning in ODL system.

Significance of the Study

This study is significant in various dimensions especially to

stakeholders in ODL system of education (Government, Students, Teachers, Communities and General public) in the areas of widening the cost-effective access to Computer Based Learning tools by many Nigerians. This study critiques the current use of computer based learning tools in ODL institutions in Nigerians, highlights the weaknesses and strengths of the system and recommends the effective and efficient ways of using the tools for acquiring necessary skills and knowledge through training by the learners and facilitators for lifelong learning.

The theme of the study is in tandem with the National Policy on ODL education as reflected in the National Policy of Education (2004) which emphasized that ODL system would be technologically-driven. The recommendations of the research is, if it is faithfully implemented, it will go a long way in reshaping the policies and cultures of ODL institutions in Nigeria with regards to the Curriculum, Role of teachers and Students, Organisational structure and Learning environment.

Statement of the Problem

Followings are the different policies initiated and adopted such as: The National Telecommunication Policy (NTP, 2000), National Mass Communication Policy (NMCP), National Broadcasting Commission (NBC) Act 1992 (as amended), Nigerian Communication Act 2003, Nigerian Postal Services Act 2004 Cap 127 laws of Federal of Nigeria, National Information Technology Policy 2000, NITDA Act 2007 were all toward providing instructions through the distance learning mode. ODL institutions are purported beneficiaries that have challenges related to the internet, broadband capacity building and universal access to computer-based learning. Despite the proliferation of ICT training institutions in the country, proficiency in ICT is still very low among the populace (FGN ICT Policy, 2012). Therefore, it has become imperative to strengthen ICT human capital development that will implement the National ICT policy. According to FGN ICT Policy (2012), over 70% of Nigerians residing in the rural areas do not have access to advanced ICT services. Moreover, some Nigerians residing in urban areas are un served or under served (FGN ICT Approved Draft, 2012). For the purpose of this study, the researchers critically look at challenges of internet and broadband, universal access and capacity building that are germane to computer based learning in ODL system.

Research Questions

1. What are the computer-based learning tools (Hardware and Software) that are actually in use in ODL institutions in Nigeria?
2. What are the perceived computer literacy and competency levels acquired through CBL among students of ODL?
3. What is the instructors' perceived effectiveness of computer-based instructional delivery in ODL in Nigeria?
4. What are the barriers to computer-based learning applications?.

Research Methodology

Research Design

This study adopted descriptive survey of 'Ex-post facto design'. The design allows the researchers to survey the opinion of the stakeholders as regards the three areas that form the scope of this study. These areas are: computer based tools that are actually in use in ODL institutions in Nigeria, efficacy of computer-based learning in enhancing the students' learning ability and skill of lifelong learning, instructors perceived effectiveness of computer based learning and barriers to the application to computer-based learning.

Population of the Study

All the students and staff of ODL tertiary institutions in Nigeria were involved in the research. According to the National Universities Commission, the following tertiary institutions offer the Open and Distance Learning in Nigeria: University of Ibadan-UI (Dual mode); Obafemi Awolowo University Ile Ife (Dual mode); University of Abuja (dual mode); University of Maiduguri (Dual Mode); Modibbo Adamu University of Technology Yola -MAUTECH (Dual mode), University of Lagos (Dual mode), National Open University of Nigeria (Single mode with 54 study centers) and National Teachers' Institute-NTI KADUNA (Single mode).

Sample and Sampling Techniques

The sample of one thousand students was selected from two single mode ODL tertiary institutions and six hundred students from three dual mode institutions in Nigeria. Sixty facilitators/teachers were selected from two single mode universities, while sixty other students were selected from dual institutions. The ODL institutions selected for the study include: University of Ibadan, University of Abuja, Modibbo Adamu University of Technology, National Open University of Nigeria and National Teachers' Institute. The universities involved in the study offer B.Sc., B.A and B.Ed. degrees in various faculties through distance mode, while National Teachers' Institute offers Nigeria Certificate in Education (NCE) also through distance mode. Purposeful and Stratified Random Sampling Techniques were used.

Research Instrument

Self-designed and structured questionnaire was used to collect the data for the research. This Computer Based Learning Questionnaire was developed on the basis of reviewed literatures and the reliability of the instrument that was established through pilot study which led to the production of accurate and reliable Computer Based Learning (CBLQ) Questionnaire that has two sections; Section A was used to obtain the demographic data of the respondents, while section B was used to identify available computer-based learning tools (Hardware and Software) that are actually in use in ODL institutions in Nigeria, perceived computer literacy and competency acquired through CBL among students of ODL, instructors' perceived effectiveness of computer-based instructional delivery applications and the barriers to Computer Based Learning applications in ODL in Nigeria. Ten questions with sub-questions were asked with the respondents. The respondents were instructed to tick only one item under each sub-question that represents his or her best response.

Reliability and Validity of the Instrument

To face, content and construct validities of Computer Based Learning Questionnaire (CBLQ), the researchers used experts in the Directorate of Information and Communication of the National University of Nigeria for these purposes. The instrument was pilot tested using 20 students and 10 staffs of the Distance Learning Institute of the University of Lagos who were not involved in the main stream of the research. The reliability of the instrument using test-retest correlation via Pearson Product Moment Correlation (PPMC) yielded as r=0.79 and r=0.80 respectively, which were considered to be highly reliable measure for the study.

Method of Data Collection

Questionnaire was administered and collected in the selected ODL institutions in Nigeria through research assistants and within two weeks.

Data Analysis

Descriptive statistics of percentage was used for data analysis.

Table 1 answers the research question 1 through the following findings:

- Students of NOUN (72%), indicated i-learn as their institution's Learning Management System tool (LMS) while students of University of Abuja (35.5%) indicated Moodle as their institution's LMS tool. Students of UI (75%), MAUTECH (59%) and NTI (95.4%), indicated e-blackboard as their institutions' LMS tool respectively.
- The available format for e-learning delivery in the institution among students of NOUN (64.4%), MAUTECH (42.5%), University of ABUJA (40.5%) and NTI (64.2%) was interactive online content except students of UI (51%) whose available format for e-learning was Power Point presentation.
- The most preferred and used social media for computer-based learning among students of NOUN (36%), UI (34.7), MAUTECH (41.5%), University of ABUJA (47%) and NTI (36.2%) was face book technology except students of UI (35%) who preferred Google +.

The most preferred place to use computer for computer based learning among students of NOUN (46.2%), UI (36.5%), MAUTECH (53.5%), Uni-Abuja (57%) and NTI (46.2%) were both at home and work

Table 2 answers the research question 2 through the following findings:

- Students of NOUN (62.6%), Uni-Abuja (54%), MAUTECH (52.5%) and NTI (41.6%) perceived their computer

S/N	Questions	NOUN No=500	UNI-ABUJA No=200	UI No=200	MAUTECH YOLA No=200	NTI KADUNA No=500
1	My institution's LMS is					
	a. e-blackboard,	60(12%)	41(20.5%)	150(75%)	118(59%)	477(95.4%)
	b. WebCT,	00	35(17.5%)	25(12.5%)	36(18%)	23(4.6%)
	c. eCollege,	00	12(6%)	00	00	00
	d. moodle,	76(15.2%)	71(35.5%)	00	28(14%)	00
	e. Desire2Learnin,	00	12(6%)	25(12.5%)	18(9%)	00
	f. Angel or	00	18(9%)	00	00	00
	g. ilearn	364(72.8)	11(5.5%)	00	00	00
	If none of the above, then mention the one your institution uses	00	00	00	00	00
2	The available format for e-learning delivery system in my institution.					
	a. Blogs/forums	00	24(12%)	00	29(19.5%)	00
	b. Interactive online content	322 (64.4%)	81(40.5%)	49(24.5%)	85(42.5%)	321(64.2%)
	c. Podcast (audio)	00	10(5%)	00	00	00
	d. Podcast (video)	00	17(8.5%)	00	00	00
	e. Power point	107 (21.4%)	33(16.5%)	102(51%)	76(38%)	107(21.4%)
	f. RSS Feeds	00	10(5%)	00	00	00
	g. Webcast (Streamed from the web not downloaded)	71 (14.2%)	24(12%)	49(24.5%)	10(5%)	72(14.4%)
	i. Other (please specify)	00	00	00	00	00
3	My most available and used social media for computer based learning is:					
	a. Twitter	164(32.8%)	37(18.5%)	50(25%)	35(17.5%)	164(32.8%)
	b. Facebook	180(36%)	94(47%)	68(34%)	83(41.5%)	181(36.2%)
	c. Google+	147(29.2%)	57(28.5%)	70(35%)	82(41%)	167(33.4%)
	d. Pinterest	09(1.8%)	4(2%)	12(6%)	00	9(1.8%)
	e. Tumblr and Wiki spaces	00	8(4%)	00	00	00
	Other (Please specify)	00	0	00	00	00
4	I prefer computer-based learning at:					
	a.Home	220 (44%)	50(25%)	61(30.5%)	64(32%)	220(44%)
	b. Work	49(9.8%)	36(18%)	66(33%)	29(18.5%)	49(9.8%)
	c. Both	231(46.2%)	114(57%)	73(36.5%)	107(53.5%)	231(46.2%)
	d. Not at all	00	00	00	00	00

Table1. Question 1: What are the computer-based learning tools (hard and soft wares) that are actually in use in ODL institutions in Nigeria?

literacy levels to be at intermediate level, while students of UI (52%) perceived theirs to be at expert level.

- The most self-perceived competent skills in using of computer among students of NOUN (26.8%), NTI (30%) and MAUTECH was MS Word processor and students of Uni-Abuja (31%) and UI (29.5%) was Spread Sheet.
- Students of NOUN (78%), Uni-Abuja (73%) UI (66%) MAUTECH (61%) and NTI (65%) used their computers most effectively in *accessing* learning objectives, resources, and assessment of academic performance

Table 3 answers the research question 3 through the following findings

- Instructors from NOUN(35.66), UI (30%), Uni-Abuja (20%) and NTI (33.33%) indicated that computer based learning is most effective in teaching and assessing the students' performance across various fields of study, while Instructors from NTI (33.33%) indicated that computer based learning was most effective in maintaining and tracking the students' performances.

Table 4 answers the research question 4 through the following findings:

- Non-ownership of computer device with internet facility among students of NOUN (44%), Uni-Abuja (46%), UI (47%), MAUTECH (54%) and NTI (41.6%)) constituted the greatest challenge to their computer based learning .
- Students of NOUN (39.6%) UI (45%), MAUTECH (45%) and NTI (41.6%) identified slow internet connectivity as another great challenge to their computer based learning, while students of Uni-Abuja (32%) identified limited access to computer as the greatest challenge,

S/N	Questions	NOUN No=500	UNI-ABUJA No=200	UI No=200	MAUTECH YOLA No=200	NTI KADUNA No=500
5	Self-perceived computer literacy levels of students of ODL institutions are that of:					
	a.Expert user	83(16.6%)	38(19%)	104(52%)	74(37%)	188(37.6
	b.Intermediate	313(62.6%)	108(54%)	80(40%)	105(52.5%)	208(41.6%)
	c.Beginner	104(20.8%)	54(27%)	16(8%)	21(10.5%)	104(20.8)
	Other (specify …….)	00	00	00		00
6	The most effective computer applications among students of ODL					
	a. I can type very well on the computer using the keyboard,	65(13%)	10(5%)	8(4%)	24(12%)	750(15%)
	b. I can use a word processor (e.g. MS Word) very well ,	134(26.8%)	50(25%)	54(27%)	56(28%)	150(30%)
	c. I can use a spread sheet package(e.g. MS Excel) very well	113(22.6%)	62(31%)	59(29.5)	38(19%)	120(24%)
	d. I can use a presentation package(e.g. MS PowerPoint) very well	16(3.2%)	8(4%)	10(5%)	12(6%)	45(9%)
	e. I can use a search engine(e.g. Google) very well	62(12.4%)	28(14%)	32(16%)	31(15.5%)	52(10%)
	f. I use email regularly	110(22%)	42(21%)	37(18.5%)	39(19.5%)	60(12%)
	Most effective Use of computer among students of ODL institutions:					
	To access programmes of instructional materials presented by means of a computer or computer systems.	75(15%)	44(22%)	56(28%)	36(18%)	155(31%)
	a.To access to learning objectives, resources, and assessment of academic performance.	390(78%)	146(73%)	132(66%)	122(61%)	325(65%)
	b.for Design (CAD),	5(1%)	0%	2(1%)	2(1%)	0%
	c.for Language Learning (CALL)	0%	0%	2(1%)	0%	0%
	for Programming and Problem Solving	30(6%)	10(5%)	8(4%)	18(9%)	20(4%)

Table 2. Question 2: What are the perceived computer literacy and competency levels acquired through CBL among students of ODL in Nigeria?

S/N	Questions	NOUN No=30	UNI-ABUJA No=20	UI No=20	MAUTECH YOLA No=20	NTI KADUNA No=50
7	Instructors only. The most effective service my institution's Learning Management System provides:					
	a. Effective in delivering and managing instructor-led synchronous online training object methodology	2(6.6%)	1(5%)	2(10%)	1(5%)	1(3.33%)
	b. Effective in delivering and managing instructor-led asynchronous online training	3(10%)	3(15%)	3(15%)	1(5%)	7(23.33%)
	c. Your institution has adequate and effective computer hardware for the students and staff	00	3(15%)	1(5%)	2(10%)	5(16.6%)
	d. Effectively connected to server based system	5(16.6%)	2(10%)	4(15%)	4(20%)	3(10%)
	e. Effective in exporting the courses shared by other instructors within the LMS	00	1(5%)	00	3(15%)	00
	f. Effective in managing learning activities in an online environment	2(6.66%)	3(15%)	2(10%)	3(15%)	2(6.6%)
	g. Effective in teaching and assessing students' performances across various fields of study	11(36.66%)	4(20%)	6(30%)	4(20%)	2(6.6%)
	h. Effective in maintaining and tracking students' performances	7(23.33%)	3(15%)	2(5%)	2(10%)	10(33.3%)

Table 3. Question 3: What is the instructors' perceived effectiveness of computer based instructional delivery in ODL in Nigeria?

- The students' most preferred and available mode of instructional delivering of NOUN (41%), UI (40%), MAUTECH (37.5%) and NTI (41.6%) was Face-to-Face Lectures/tutorial facilitation, while in University of Abuja (31.5%); print materials were the most preferred. The mentioned preferred and available modes of instructional deliveries limit the students' perceived need for computer-based learning.

Discussion

As given in Table 1, majority of the sampled students indicated e-blackboard, MOODLE and i-learn as their institutions' computer-based learning tools. The import of this finding indicates that, institution's choice of LMS varies and depends on both financial and human resources available, capability of the chosen LMS to deliver instruction, or to facilitate communication between learner and tutor, or to enable students to have access to remote sources of information. Other factors considered in the choice of an institution's LMS include curriculum, role of teachers and students, organizational structure and learning environment. This is in line with Valdez, McNabb, Foersch, Anderson, Hawkes and Raack's(2000) position

S/N	Questions	NOUN No=500	UNI-ABUJA No=200	UI No=200	MAUTECH YOLA No=200	NTI KADUNA No=500
8	Students ownership of computer devices with internet facility:					
	a. Desktops	118(23.6%)	39(19.5%)	37(18.5%)	35(17.5%)	105(21%)
	b. Laptop	75(15%)	31(15.5%)	30(15%)	29(14.5%)	80(16%)
	c. Tablet	37(7.4)	17(8.5%)	12(6%)	12(6%)	39(7.8%)
	d. Smart phone	50(10%)	21(11.5%)	27(13.5%)	34(17%)	68 (13.6%)
	e. Non-ownership of computer device	220(44%)	92(46%)	94(47%)	90(45%)	208(41.6%))
9	The most difficult challenge to students' computer based learning					
	a. None access to computer	59(11.8%)	31(15.5%)	7(3.5%)	18(9%)	40(8%)
	b. Limited access to computer	103(20.6%)	62(31%)	57(28.5%)	44(22%)	00
	c. Slow internet connectivity	198(39.6%)	54(27%)	90(45%)	69(34.5%)	270(54%)
	d. lack of capacity building training on computer literacy	96(19.2%)	38(19%)	20(10%)	50(25%)	130(26%)
	e. difficulty in reading or writing using computer	44(8.8%)	15(7.5%)	26(13%)	19(9.5%)	60(12%)
	f. Other (please specify	00	00	00	00	00
10	The most preferred and available mode of learning delivery in Open and Distance learning is:					
	a. Print	85(17%)	63(31.5%)	48(24%)	42(21%)	86(17.2%)
	b. Radio	00	13(6.5%)	00	9(4.5%)	00
	c. CD/DVD	90(18%)	16(8%)	26(13%)	5(2.5%)	91(18.2%)
	d. Video Conferencing	00	00	00	00	00
	e. Face-to-Face Lectures/tutorial facilitation	205(41%)	54(27%)	80(40%)	42(37.5%)	205(41.6%)
	f. Learning Management System (ilearn)	70(14%)	19(9.5%)	00	28(14%)	00
	g. Open Education Resource (OER)	50(10%)	35(17.5%)	46(23%)	41(20.5%)	118(23.6%)

Table 4. Question 4: What are the barriers to computer-based learning applications in ODL in Nigeria?

that the success or failure of technology use depends more on 'human and contextual factors' rather than on hardware or software. Westbrook (2001) observed that the introduction of ICT in education has resulted in the change in four core areas: 1) curriculum'; 2) role of teachers and students; 3) organisational structure; and 4) learning environment

Table1 also shows the available formats for e-learning delivery system utilized by the students of the sampled institutions that were interactive online content and Power Point presentation. These findings are congruent with the belief that Computer based learning provides programmes that deliver instruction, or facilitates communication between learner and tutor, or to enable students to have access to remote sources of information. A learning management system therefore provides the ability to students to use interactive features such as threaded discussions, video conferencing and discussion forum.

As shown in Table1, the preferred and most frequently used social media for computer based learning among students of the sampled institutions were Facebook and Google websites. The phenomenal growth and rising popularity of social media and networking, provides ample opportunities for teaching and learning through sharing and connecting with other users with similar learning interests at a distance. Heinlein (2010) point out that, social networking depends on mobile and web-based technologies that creates highly interactive platforms through which individuals and communities share, co-create, discuss, and modify user-generated content. As indicated by the above findings, the ability of social media to generate interactive discussions and deliver instructions at a distance cannot be under estimated.

Table 1 also shows the preferred places to use computer for learning among students which were at home and work. This is in line with the objective of providing education to learners regardless of distance, space, time and wherever through Information and Communication Technologies and in tandem with the philosophy of ODL.

Table 2 above indicates that most of the sampled students perceived their computer literacy levels to be at intermediate level and expertise or advanced level. This is a welcomed development, since computer literacy level of a student determines how effectively and efficiently he or she uses computer for learning, Computer Aided Designing, language learning, programming and problem solving. The students of ODL institutions' effective use of MS

Word processor and Spread Sheet, in accessing learning objectives, resources, and assessment of academic performance through computer, could be attributed to their level of computer literacy and competency and effectiveness of computer based learning programmes of these institutions in Nigeria. This is in line with FGN, (2012) assertion that, Computer-based learning, not only helps learners to have a worthwhile learning experience, but also helps them in acquiring the skills to become lifelong learners. Acquisition and effective use of these skills are fundamental and imperative means of accessing learning objectives, resources, and assessment of academic performance using Learning Management System (LMS) of any educational institution.

Table 3 shows that most of the instructors from the sampled institutions indicated that Learning Management Systems in their institutions were most effective in teaching and assessing the students' performance across various fields of study, maintaining and tracking students' performances. This is in line with the concept of Computer Management Instruction (CMI) which is used for instructional management in a web and pedagogical environment (Encyclopaedia Britannica).

Table 4 shows that, majority of the students sampled in all the institutions in this research indicated non-ownership of computer device with internet facility, slow internet connectivity and limited access to computer, constituted challenges to their effective computer-based learning. This is in accordance with the FGN (2012) revelation that some critical challenges to computer-based learning in schools of Nigeria have slow internet connectivity and narrow broadband, universal access (non-ownership of computer and internet facility) and capacity building which are germane to computer-based learning in ODL system. Also pertinent to this discussion is the fact that, most of the sampled students preferred face-to-face classroom lectures/tutorial facilitation and provision of study materials which are the currently available modes of instructional delivery in these institutions. This phenomenon could be attributed to the fact that, most of the students of the sampled ODL institutions studied under face-to-face conventional classroom instructional delivery and to change to computer-based Learning mode constituted a challenge.

Cautions on Use of Internet for Counseling

With the emergence of Information and Communication in education including online counselling, especially within educational institutions' learning management systems of developing countries such as Nigeria, millions of Nigerians now can access learning via internet and their GSM phones or a GSM-enabled device (Okopi, 2014). ICT has opened another opportunity for counsellors that might not have been available, but having ICT in Education is not taken off. For example, online counseling is being offered in NOUN through the institution Learning Management System (i-learn). However, web based media has created new salient issues that need to be critically examined with regards to their benefits and challenges for its use as a viable tool for counselling. One of such challenges is easy to access publicly to post private information and to rise several professional and ethical concerns for helping professionals, though Heinlein (2010) observes that, it is absolutely ethical for counsellors to use internet based media if inherent ethical issues are properly and adequately addressed. Despite the revolution of ICT, counseling practitioners should understand that it is their primary obligation to protect their clients' confidentiality and also must protect confidential information stored in any medium (Okopi, 2014). Other challenges associated with counselling online include: the risks of sharing client information on the internet in unencrypted and non-therapeutic environments; self-disclosure and blurring personal and professional boundaries and confidentiality of private information; multiple relationship; testimonials; informed consent; minimizing Intrusions on Privacy; initiating professional relationships and documenting and maintaining records (Okopi, 2014)

It is therefore recommended that before using internet based media for counseling, the following precautionary measures must be taken in order to avoid breaching the ethical and professional code of practice:

- Provide a written web based media policy and consent form that clients must sign.
- Use privacy settings on web based media accounts

whenever possible.

- Check with state licensing board to stay current on rules and regulations.
- Have separate social media accounts for your professional and private life.

These cautions become very necessary because of the fact that counsellors in some ODL institutions, for example NOUN, have started using ilearn- Learning Management System for counselling purposes.

Recommendations

It is therefore recommended that ODL institutions should provide adequate and sufficient computers with internet for the staff and students to enable effective computer based learning to take place. This action will mitigate the problems of universal access to computer (non-ownership of computer and internet facility connectivity).

In addition, ODL institutions should be as a matter of necessity, provide computer and internet facility as soft loan for both students to enable them own laptop computers and thereby minimize the problem of ownership and increase accessibility to computer based learning.

Also ODL institutions should provide wide broadband in order to mitigate the issue of slow connectivity which is one of the current challenges that staff and students of ODL institutions are facing.

Programmes of capacity building of both staff and students in computer based learning must be offered by ODL institutions. This is because the acquisition of necessary knowledge, skills and right attitude to the use computer are germane to computer based learning in ODL system.

Staff and students of ODL institutions should be encouraged to use computer based learning tools in their institutions for both instructions and learning in terms of Computer Assisted Instruction (CAI), Computer Manage Instruction (CMI), Computer Aided Design (CAD), Computer Assisted Language Learning (CALL) and Programming and Problem Solving. This will complement the preferred face-to-face classroom lectures/tutorial facilitations and provision of study materials which are currently available modes of instructional delivery in these institutions.

Conclusion

The research specifically identified e-blackboard, MOODLE and i-learn as computer based learning tools actually in use in ODL institutions in Nigeria, while interactive online content and power point presentation were available and used e-learning delivery formats in these institutions. The available and frequently used social media for computer based learning among the students were facebook and Google website. Intermediate and advance computer literacy levels were found to be the computer competency skill levels of ODL students in Nigeria, while the effective computer applications among students of ODL institutions were MS Word processor and Spread Sheet. The students of ODL institutions' effective use of Word processor (MS) and Spread Sheet, accessing learning objectives, resources, and assessment of academic performance through computer, could be attributed to their level of computer literacy and competency; and effectiveness of computer based learning programmes of their institutions in Nigeria. The preferred places to use computer for computer based learning among students were both at home and work. The research identified teaching, assessing students' performance across various fields of study, maintaining and tracking students' performances through LMS as the perceived effective computer applications among instructors of ODL in Nigeria. The research also identified that non-ownership of computer devices with internet facility, slow internet connectivity and limited access to computer, constituted most difficult challenges to their effective computer based learning.

The expected outcomes of this study identifies the areas of strength and weaknesses in the current use of computer based learning tools in ODL institutions in Nigeria and recommended the effective and efficient ways of using computer based learning in ODL of Nigeria so as to achieve the desired objectives.

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ABOUT THE AUTHORS

Fidel Onjefu Okopi is presently working as the Director of NOUN Study Centre, McCarthy, Obalende, Lagos. He obtained his School Certificate in 1970, Teachers' Grade 11 Certificate in 1976, Nigerian Certificate in Education 1981, First Degree in 1984, Masters Degree in 1991 and Ph.D in 1999, PGD in 2006 and Master in Distance Education in 2008. He was working as a lecturer in Kashim Ibrahim College of Education Maiduguri from 1984 to 2003 where he was promoted as Chief Lecturer before joining the services of National Open University in 2003.

Odeyemi, Olajumoke Janet has a Ph.D in Adult Education. Her research interest include Literacy, Higher Education, Gender, Distance Education, Computer assisted Learning and E-learning. She has delivered paper both locally and at international conferences and workshops. She is a seasoned researcher who has equally engaged in many researches. Her interest includes research, reading and networking.

Adewale is an Educational Technologist and has experience in leveraging existing and emerging technologies to solve problems and enhance Education. He has been closely involved with open and distance education in Nigeria for over nine years. He is passionate about improving lives through Education using technology and has a broad background which encompasses Engineering, Network administration and Project management.