Application of Information and Communication Technology in Teaching and Learning in State Owned Colleges of Education of the South-East of Nigeria

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Abstract

Application of ICTs in teaching and learning in state owned Colleges of education of the South-East of Nigeria. The study is a descriptive survey. To guide in the achievement of the purpose of the study, four research questions were raised. The target population of the study was three hundred and twenty one (321) lecturers. Data were collected using a questionnaire of a four point modified likert type scale and experts in and outside the department of educational technology validated the instrument. The reliability of the instrument was ascertained by using ten teachers from another College of education to carry out a test – retest exercise, and a reliability coefficient of 0.71 was established using Pearson product moment correlation coefficient statistics. The researchers administered the instrument while data were analyzed using the mean and standard deviation statistical tool. Generally, the study revealed that many lecturers lack basic ICT skills; many ICT facilities are not available in these institutions. Based on these findings, the researchers recommended as follows; Lecturers at all level should try to improve on their capacity and on ICT competencies through trainings and full participation in workshops. Also, sufficient ICT facilities made available for lecturers use in teaching and learning.

Keywords : *Communication Technology, Teaching and Learning, South-East Nigeria*

Introduction

Teaching and learning before the coming of information and communication technology has been described as traditional method of teaching which was characterized by the old chalk and talk method. It also involves the face- to- face approach to teaching and learning where the teacher sees himself as the centre point of teaching (Akude, 2004). The teacher does all or most of the talking in the classroom; the students are passive, have little or no control over the flow of information and are reduced to playing the role of a stenographer. Learning in this approach is by mere listening. This is a very poor approach to learning. Supporting this view, Kpeke and Osho (1998) asserted that learners retain only 20% of what they hear while Onyejemezi (1991) among others upheld the fact that students remember 90% of what they say as they do it. The later statement lays emphasizes on participatory and problem-solving in teaching and learning which information and communication technology (ICT) seems to advocate and involves critical thinking

and exchange of ideas by different scholars, hence the introduction of computer in teaching and learning process (Alalibo, 2006). However, before explaining further, efforts must be made to explain the basic concepts in this study, i.e. application, information and communication technology.

According to Oxford advanced learner's Dictionary (1994); application means the act of putting a theory, discovery, etc to practical use. According to Technofuture (2006), the "I" in ICT stands for Information. Information here refers to the processing, management and storage of data.   "C" then stands for communication, and communication refers to the transmission of information between persons and equipment. Also, "T" in ICT stands for Technology, and technology is the application of science to accomplish desired objectives. In the case of ICT, the definition of technology is narrowed to include only computer-related purposes. Specifically, the use of hardware and software to process, manage, store or transmit data. To be computer literate means to have the knowledge and skills or ability to operate a computer so as to yield any desired result. ICT can be defined as a diverse set of electronic technologies and technological tools and resources used to communicate, create, disseminate, store, and manage information (Tinio,2003; Adomi & Kpangban, 2010). These technologies may include computers, the Internet, broadcasting technologies and telephony. However, Joseph, Olarionye & Emmanuel, (2006) sees ICT as the combination of computers and telecommunications technologies to improve the quality of teaching and learning through processing, editing, storage, retrieval and dissemination of information with sound, motion pictures and diagrams. It is possible for any one in Nigeria who is in ICT environment to relate with any other person in any part of the world that is ICT friendly; Iwu (2001) opined that ICT has rendered international boundaries irrelevant since many modern activities cut across international frontiers. That is why we live in a boundless world that is becoming a smaller place, due to the recent development in technology.

ICT is a critical tool in preparing and educating students with the required skills for the global workplace. ICT makes it easier for students to access knowledge. ICT is regarded as an engine for growth and tool for empowerment, with profound implications for education, change and socio-economic development. Teachers, parents as well as education policy makers are central forces in tapping the learning opportunities created by the introduction of ICTs. They hold the key to what and how teaching and learning take place at schools and in the communities (Mankilik & Agbo, 2006). Generally, ICT holds out the opportunity to revolutionize teaching methods, expand access to quality education and improve the management of education system (World Bank, 2002). The main purposes of ICT consist not just in the development of human mental resources that allows people to both successfully apply the existing knowledge but to produce new knowledge (Shavinina, 2007).

The Problem

In recent years there has been a groundswell of interest in how computers can best be harnessed to improve the efficiency and effectiveness of education at all levels. However, it is unfortunate to observe that many students in our colleges of education today resort in quoting old authors in their project work, others copy exactly what has been written by others while some photocopy old works and tear out the front page and put in theirs. Moreso, these students after graduation stay idle, unemployed as reports from radio and television prove that unemployment rate in Nigeria is ever increasing yearly (National Bureau of Statistics, 2009). In the light of the above, one of the most commonly cited reasons for using ICTs in the classroom has been to better prepare the present generation of students for a workplace where ICTs, particularly computers, Internet and related

technologies, are becoming more and more ubiquitous (Matsepe-Casaburri, 2003). Hence the researcher deemed it fit to investigate into the application of ICT in teaching and learning in state owned Colleges of Education in the South-East of Nigeria.

Purpose of the Study

The major purpose of the study was to examine the level of application of ICT in teaching and learning in state owned Colleges of Education in the South-East of Nigeria. Specifically, the study intends to:

    i.   Identify the level of acquisition of relevant ICT teaching skills by the lecturers in the area under study.
    ii.   Find out how available the ICT facilities are in these institutions.
    iii.   Determine how accessible the ICT facilities are to the lecturers.
    iv.   Determine the regularity of use of ICT facilities by the lecturers in teaching.

Research Questions

In order to effectively cover all the issues raised in the purpose of this study, corresponding research questions were raised;

    i.   To what extent do the lecturers who teach in our colleges of education posses the relevant ICT teaching skills?
    ii.   What are the available ICT facilities in our institutions?
    iii.   To what extent do lecturers have access to ICT facilities in the institutions?
    iv.   How regularly are the ICT facilities put into use by lecturers in the institutions?

Method and Procedures

The research design adopted for this study is the descriptive survey. The researcher employed the use of questionnaire to gather information from the sampled population. The reliability index of the questionnaire was calculated using the Pearson Product Moment Correlation Coefficient and it gave 0.71. There are four (4) state owned Colleges of Education in the South East of Nigeria having a total of and six hundred and forty one (641) lecturers.

Table 1: Showing names of State owned Colleges of Education and corresponding number of lecturers.

S/N	State owned Colleges of Education in the South-East	No. of lecturers
1	Abia State College of Education Technical, Arochukwu	85
2	Ebonyi State College of Education, Ikwo	189
3	Enugu State College of Education Technical, Enugu	96
4	Nwafor Orizu College of Education, Nsugbe	271
	Total	**641**

Source: *Field survey from each of the colleges listed in the table, 2012.*

However, the researcher decided to study all the four colleges in the South-East, but purposively sampled 50% of the lecturers. Thus, a sample of 321 lecturers was got and used.

Table 2*: Showing Stated owned colleges of education in the South-East and selected lecturers accordingly.*

S/N	State owned Colleges of Education in South-East	Pop. of lecturers	50% pop.
1	Abia State College of Education Technical, Arochukwu	85	43
2	Ebonyi State College of Education, Ikwo	189	95
3	Enugu State College of Education Technical, Enugu	96	48
4	Nwafor Orizu College of Education, Nsugbe	271	135
	Total	**641**	**321**

Results

Research Question one: To what extent do lecturers who teach in the colleges of education possess the relevant ICT teaching skills?

Table 3*: Lecturers responses on possession of ICT teaching skills*

S/N	ITEMS (SELECTED ICT OPERATIONS)	POSITIVE		NEGATIVE	
		NO.	%	NO.	%
1	Typing with key boards	200	62.3	121	37.7
2	Formatting	68	21.2	253	78.8
3	Changing the case of a text	170	53.0	151	47.0
4	Copying a text from one page to another	306	95.3	15	4.7
5	Underline a text	307	95.6	14	4.4
6	Effect font size of a word	210	65.4	111	34.6
7	e-mail	298	92.8	23	7.2
8	Saving a file in removable disk	140	43.6	181	56.4
9	Painting a program	8	2.5	313	97.5
10	Permanently deleting an icon	142	44.2	179	55.8
11	Changing of desktop background	96	29.9	225	70.1
12	Internet browsing	196	61.1	129	38.9
13	Using fax machine to send letter	30	9.3	291	90.7
14	Drawing charts, graph etc with computer	25	7.8	296	92.2
15	To warm boot a computer system	48	15.0	273	85.0

Table 3 indicates that out of 15 selected ICT skills identified for this study, the lecturers in these colleges possess only 8 skills. Such ICT skills which they possess includes among others, typing with the key board, changing the case of a text etc while such skills as formatting, painting a program etc are lacking. This is premised on the grounds that the researcher assumed that all skills above 50% are considered to have been possessed.

Research Question two: What are the available ICT facilities in these institutions?

Table 4*: Lecturer's responses on the availability of ICT facilities.*

S/N	Selected ICT facilities	Available	%	Not Available	%
1	Interactive board	25	7.8	296	92.2
2	Electronic bulletin board	4	1.2	317	98.8
3	Desktop computer	68	21.2	253	78.8
4	Scanner	45	14.0	276	86.0

5	Handset	321	100	-	-
6	Lap top computers	124	38.6	197	61.4
7	Internet services	69	21.5	252	78.5
8	Digital versatile disk recorder	96	29.9	225	70.1
9	Digital versatile disk player	96	29.9	225	70.1
10	Television	153	47.7	168	52.3
11	Overhead projector	99	30.8	222	69.2
12	Closed circuit television Cameras	25	7.8	296	92.2
13	Film and film projector	43	13.4	278	86.6
14	Intranet	15	4.7	306	95.3
15	Very small aperture satellite terminal (VSAT)	69	21.5	252	78.5

N= 321

Table 4; For purposes of generalization, the researcher considers all items that possessed percentages from 50 and above as being available, while those below 50 percentages are considered not available. In the light of this consideration, such item as Hand set (100%) is available, while others are not available.

Research Question three: To what extent do lecturers have access to ICT facilities in these institutions?

Table 5: Lecturer's responses on the extent of accessibility of ICT facilities.

S/N	Selected ICT facilities	Accessible	%	Not Accessible	%
1	Interactive board	25	7.8	296	92.2
2	Electronic bulletin board	32	10.0	289	90.0
3	Desktop computer	200	62.3	121	37.7
4	Scanner	52	16.2	269	83.8
5	Handset	321	100	-	-
6	Lap top computers	128	39.9	193	60.1
7	Internet services	67	20.9	254	79.1
8	Digital versatile disk recorder	92	28.7	229	71.3
9	Digital versatile disk player	91	28.3	230	71.7
10	Television	153	47.7	168	52.3
11	Overhead projector	90	28.0	231	72.0
12	Closed circuit television Cameras	25	7.8	296	92.2
13	Film and film projector	40	12.5	281	87.5
14	Intranet	15	4.7	306	95.3
15	Very small aperture satellite terminal (VSAT)	65	20.2	256	79.8

N= 321

Table 5 shows that only the ICT facilities that are available are then accessible to lecturers for teaching and learning. Such facilities are Desktop computers and handsets with a percentage of above fifty respectively, while a whole lot of others are not accessible to the lecturers.

Research Question four: To what extent do lecturers utilize ICT facilities in class room teaching?

Table 6*: Lecturer's responses on the extent of utilization of ICT facilities in teaching.*

S/N	Items	SA	A	D	SD	Mean	SD	Rmks.
1	Most needed ICT materials for class room instruction are lacking.	200	121	-	-	3.6	1.08	SA
2	The few available ICT materials are not regularly used due to lack of electricity power supply.	156	120	40	5	3.3	1.07	A
3	Most lecturers do not know how to operate some of the available ICT facilities.	120	80	87	34	2.9	1.03	A
4	Lack of support staff to assist lecturers use ICT facilities for class room instruction is a problem.	164	98	50	9	3.3	1.07	A
5	Lecturers need further trainings and workshops to keep them abreast with these ICT facilities.	240	50	31	-	3.7	1.09	SA

Table 6 revealed that lecturers in these colleges do not regularly utilize these ICT facilities due to factors like, lack of the facilities, lack of electricity supply, lack of skills of operation of these facilities.

Discussion of Findings

The study upheld that a good number of lecturers lack some basic skills as to employ ICT facilities in classroom teaching and learning in our higher institutions. It invariably shows that ICT application in our institutions is at low ebb. This agrees with the opinion of Akude (2004, P. 103) who suggested that computer literacy should be introduced in all our tertiary institutions.

The result shows that out of the15 selected ICT facilities listed, only 5 could be said to be readily available while others are not in the institutions. Contributing, Manjulika & Reddy (2002) asserts that the major problem we have in our school system is dearth of learning resources or ICT tools. They further explained that lack of learning resources will place serious limitations on what the teacher can achieve.

The result upheld that lecturers have access to the few ICT facilities that are available in these institutions; however, the problem is that they do not have sufficient ICT facilities. It follows that only few ICT facilities are accessible to the lecturers for class room instruction. Lamenting on this issue, Carlson and Firpo (2001) upheld that teachers need effective tools and facilities, that can help them develop computer based projects and activities especially those that are geared to raising the level of teaching in our institutions.

The research revealed that the extent of lecturers' utilization of the ICT facilities is very low. This is sequel to lack of electricity power supply, lack of basic computer operational skills etc. Also, Yusuf (1997), Okebukola (1990) & Egunjobi (2003) agreed that incessant power failure is a serious impediment to ICT implementation.

Recommendations

In consideration of the findings of this research and their attendant implications, the following recommendations are made:
   i.   Lecturers at all level should try to improve on their capacity and ICT competencies, through trainings and workshops participation.

ii.   It is also advisable for the government and college authorities to provide our colleges with sufficient ICT facilities to enable lecturers use them in teaching and learning.

Conclusion

Several measures are necessary to increase the level of ICT application in teaching and learning in the colleges of education in the South-East of Nigeria. Such measures are; creating ICT awareness, campaign and also effective training of lecturers, making available necessary ICT facilities needed for effective teaching and learning, and providing necessary infrastructures in the colleges of Education. There is also an urgent need for continuous in service training, workshops, seminars and professional development for all lecturers in other to make room for efficiency and effectiveness in our teaching and learning process in colleges of education.

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