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THE USE OF ICT TO ENHANCE UNIVERSITY EDUCATION IN NIGERIA

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ABSTRACT: *Today, information and communication technology (ICT) is very important in the learning and teaching process at all levels of education. However, in Nigeria the use of ICT is still at its infancy. If the educational system in Nigeria is to match with global requirements, there is need to incorporate the use of ICT that facilitates knowledge acquisition within and beyond the classroom. This paper examines the gap and challenges facing the use of ICT in university education in Nigeria. The study is a descriptive survey that assessed five universities for the most urgent solution. The population of the study was 120 respondents and this is made up of university lecturers and the students. Findings revealed that there is a gap between the university teachers and students and ICT usage in classrooms and many university lecturers and students have to go to commercial cyber cafés in town before they have access to a computer that is internet connected, teachers are faced with some challenges and barriers of availability of facilities which prevent them to employ ICT in the classroom, the solutions proffered include funding, provision of facilities and technical expertise in Nigeria universities.*

KEYWORDS: University Education, ICT, Use, Gap**,** Classroom, Education System, Nigeria

INTRODUCTION

Today, many schools in Nigeria are faced with the developmental challenges of the use of Information Communication Technology (ICT) in terms of e-teaching and e-learning processes. In 2007, the Federal Ministry of Education created its ICT department and has since been collaborating with several government agencies and other stakeholders in the private sector to initiate ICT driven projects and programmes to affect all levels of education sector in Nigeria (Osakwe, 2012). Like every issue of development in the country, all universities in Nigeria are struggling to access the technology as a measure to ascertain academic excellent through teaching and learning.

In an attempt to globalize the educational sector, leaders of the South – South States in Nigeria namely Bayelsa, Rivers, Akwa-Ibom, Cross-River, Edo and Delta (BRACED) are viewing education and human capacity development as critical to the overall development of the schools, the development of strategies for the enforcement of ICT driven programmes has become imperative. In this age of information explosion, one's skill in processing and distribution of data using computer hardware and software, telecommunications, and digital electronics will largely determine one's value in the work force. Computer literacy will likely have such impact on career opportunities in the future just as the ordinary or conventional literacy had in the past. Cheung and Huang (2005) emphasized the use of ICT as an effective teaching tool in university education as many university teachers now publish their course materials via the internet. They suggested that it is insufficient for only university to use ICT for good job combination leaving out the students' ability to do same. Educational technologists have cited may reasons as to why an education system based on ICT can more effectively result in positive pedagogic outcomes than one based only on conventional

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techniques (Balanskat, Blainire and Kefala, 2006; Means et al, 1993; Roblyer and Edwards, 2000; Than, 2006 and Ting, 2005).

According to Osakwe (2012), acquisition, deployment and management of information technology resources and services for teaching depend on electricity. Studies have shown that poorly maintained equipment and poor network infrastructure are prominent obstacles to the integration of ICT tools in teaching. Poor technical equipment would make negative impact on teacher's desire to integrate ICT tools in teaching all other subjects. Technological and science laboratories are run using electricity. Computers cannot operate without electricity even if all the equipment required are present. A number of teachers today have never use computers in their lives and they are terribly shy when they are confronted with this new technology and the terminology associated with using them. Some schools do not have them provided for their teachers and some teachers may not be economically buoyant to buy one for themselves. At the tertiary-level of education, Okhiria (2007) noted that National Universities Commission (NUC) in Nigeria has prescribed that there should be at least one computer to every four students and one PC to every two lecturers below the grade of lecturer I, one PC per senior lecturer and one notebook per reader/ professor. NUC has gone further to establish e-learning platforms fitted with twenty smart boards in twelve Federal universities for the promotion of the use of ICT in teaching and learning. Majority of the Nigerian universities have not achieved this recommended system ratio for their faculties, though some have made giant or notable strides in campus wide area networking and e-learning course deliveries. Institutions like Obafemi Awolowo University (OAU) and University of Nigeria, Nsukka boast of its best-developed ICT system in the country with a personal VSAT access to the internet and a campus wide intranet services. University of Jos which is blazing the trail for content development and e-learning in addition to the campus networking, (Liverpool et al, 2009). Very few of Public higher institutions in the country are capable of meeting the ICT needs of their staff and students. The question now is what happens to the rest institutions? Many university lecturers and students have to go to commercial cyber cafés in town before they have access to a computer that is internet connected or at best buy private models with which they are able to connect to the internet. The private universities seem to be better off since majority of them like Covenant University (CU), Afe Babalola University, American University of Nigeria (AAUN), etc have 24-hour internet connectivity in their campuses but the population of lecturers and students compared to public universities are few. At AAUN for instance, each student is provided a laptop with the cost factored into the fee structure. That of course will not be within the reach of many students.

There are significant bodies of research relating to the obstacles of ICT integration in teaching and learning in the developed countries such as US and UK, but in the developing countries like Nigeria, especially at the university level, such publications are few and scanty in scope, if they exit at all. Whereas such publications are valuable information sources for countries which would like to improve and make a success on ICT tools integration in teaching and learning. The decision to make foray in this regard is therefore, apt and lessons learned can serve as useful guidelines for universities within the areas covered and the rest of the nation.

Research Questions

Three research questions were put forward namely:

1. What are the problems hindering lecturers and students from using ICT in your university

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2. What are the challenges associated with the use of ICT by lecturers and students in Nigeria Universities.
3. How can the use of ICT among lecturers and students enhance the quality teaching /learning in universities in BRACED States in Nigeria?

METHOD

A descriptive survey design was used for the study. A validated questionnaire was used to examine the lecturers and students challenges preventing them from using ICT in the classroom. A total of 150 questionnaire copies were administered and a total of 133 were returned were collected. Out these 133, only 120 were filled completely made up of thirty (30) Lecturers and seventy (70) students in public universities in the BRACED States stratified randomly were selected to respond to the questionnaire and therefore, constituted the population of the study. Data collection through a questionnaire survey was chosen because it allows a larger sample, as well as a wider geographical distribution of the sample, and the collection of a large amount of data in a relatively short time. The respondents contacted were the ones familiar with the use of ICT since most of them used the Internet for the purposes of gathering information, sending email and working on social networking.

The questionnaire consisted of three main parts. Part one contains ten items that deal with the problems hindering lecturers and students from using ICT. In part two, the challenges associated with the use of ICT by lecturers and students in Nigeria Universities were enumerated with six items. Part three with nine items is concerned with the use of ICT among lecturers and students to enhance the quality teaching /learning in universities in BRACED States in Nigeria. All the items in the three parts were put on a five-point Likert scale ranging from strongly disagree, SD (1 point); disagree, D (2 points); undecided, U (3 points); agree, A (4 points) and strongly agree, SA (5 points). A decision was made based on the respondents' scores on this scale. In the analysis phase of the study, frequencies, percentages and means for each item were used as the statistical tools to analyze results.

RESULTS AND ANALYSIS

The data obtained were collated; frequency, percentage and the mean were calculated and the results and findings are presented in tables in table 1. In Figure 1, results are categorized according to the problems, challenges and enhancers of ICT in the location considered.

Table 1: Frequency and Mean Rating on the use of ICT in University Education in Nigeria

Item	Response on the use of ICT in University Education in Nigeria	Response	Frequency	PERCENT	Mean
	Part One: Problems				
1	Enough ICT instructional technical support equipment in my university	SA	6	5	2.808
		A	36	30	
		U	30	25	
		D	25	20.8	
		SD	23	19.2	

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2	Inability to quickly adopt and adapt with using ICT facilities hinders the use of ICT	SA	8	6.7	2.675
		A	25	20.8	
		U	30	25	
		D	34	28.3	
		SD	23	19.2	
3	Low access to ICT facilities in my university	SA	17	14.2	3.217
		A	40	33.3	
		U	25	20.8	
		D	28	23.3	
		SD	10	8.3	
4	Non possession of personal computer and some essential software hinder the use ICT in my study	SA	23	0.2	3.333
		A	40	33.3	
		U	25	20.8	
		D	18	15	
		SD	14	11.7	
5	Problem of poor reception (uploading and downloading of documents/files act as hindrance.	SA	33	0.2	3.658
		A	40	33.3	
		U	25	20.8	
		D	17	14.2	
		SD	5	4.2	
6	Lack of consistent and affordable electricity supply discourages the use of ICT in my University	SA	53	0.2	3.908
		A	35	29.2	
		U	10	8.3	
		D	12	10	
		SD	10	8.3	
7	Health related problems associated with the use of computer like eye strain and heat exposure discourage me on the use of ICT.	SA	43	0.2	3.783
		A	40	33.3	
		U	15	12.5	
		D	12	10	
		SD	10	8.3	
8	Inability of my university to meet the capital and running cost of establishing both the internet and intranet facilities.	SA	48	40	3.983
		A	42	35	
		U	15	12.5	
		D	10	8.3	
		SD	5	4.2	
9	Problem of resourcing issues like class size, students and teacher preparation for the new modes of learning and teaching and for the use of associated technologies	SA	38	31.7	3.633
		A	42	35	
		U	13	10.8	
		D	12	10	
		SD	15	12.5	
10	Pedagogical issues like the need to re-design courses for different delivery modes hinders me on the use of ICT	SA	48	40	3.883
		A	42	35	
		U	8	6.7	
		D	12	10	
		SD	10	8.3	
	Part Two: Challenges				
1		SA	8	6.7	2.867

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	Enough capacity to accommodate increase in traffic	A	34	28.3	
		U	16	13.3	
		D	58	48.3	
		SD	4	3.3	
2	Insufficient internet or IP addresses (Lack of affordable connectivity and bandwidth) has affected my use of ICT	SA	68	56.7	4.300
		A	33	27.5	
		U	9	7.5	
		D	7	5.8	
		SD	3	2.5	
3	Lack of qualified teachers to teach ICT in schools	SA	38	31.7	4.000
		A	38	31.7	
		U	4	3.3	
		D	27	22.5	
		SD	13	10.8	
4	Lack of computers and computers are still expensive	SA	58	48.3	3.925
		A	31	25.8	
		U	5	4.2	
		D	16	13.4	
		SD	10	8.3	
5	Lack of internet or slow connectivity	SA	51	42.5	3.742
		A	32	26.7	
		U	5	4.2	
		D	19	15.8	
		SD	13	10.8	
6	The physical environment in most rural and remote settings is characterized by some combination of heat, dust and humidity, each of which is a challenge for standard computers	SA	44	36.7	3.675
		A	38	31.7	
		U	3	2.5	
		D	25	20.8	
		SD	10	8.3	
	Part Three: Enhancers				
1	The use of ICT in universities will improve the quality of teaching and learning	SA	35	29.2	3.325
		A	34	28.3	
		U	6	5	
		D	25	20.8	
		SD	20	16.7	
2	There is a significant challenge in adequately planning and financing the use of ICT in development programs.	SA	55	45.8	3.792
		A	28	23.3	
		U	8	6.7	
		D	15	12.5	
		SD	14	11.7	
3	Appropriate rooms or buildings available to house the technology	SA	42	35	3.542
		A	37	30.8	
		U	3	2.5	
		D	20	16.7	
		SD	18	15	
4		SA	38	31.7	3.408

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	Provision of computers, internet and intranet facilities	A	37	30.8	
		U	4	3.3	
		D	18	15	
		SD	23	19.2	
5	Making computers available to all lecturers and students can enhance the use ICT	SA	54	45	3.842
		A	34	28.3	
		U	4	3.3	
		D	15	12.5	
		SD	13	10.8	
6	Government controls, especially taxation and censorship	SA	54	45	3.992
		A	39	32.5	
		U	8	6.7	
		D	10	8.3	
		SD	9	7.5	
7	Increasing commercial use of the Internet has heightened security and privacy concerns	SA	34	28.3	3.408
		A	37	30.8	
		U	11	9.2	
		D	20	16.7	
		SD	18	15	
8	Training and re-training is required	SA	40	33.3	3.933
		A	50	41.7	
		U	14	11.7	
		D	14	11.7	
		SD	2	1.7	
9	Adaptation to changing roles and norms	SA	38	31.7	3.900
		A	50	41.7	
		U	16	13.3	
		D	14	11.7	
		SD	2	1.7	

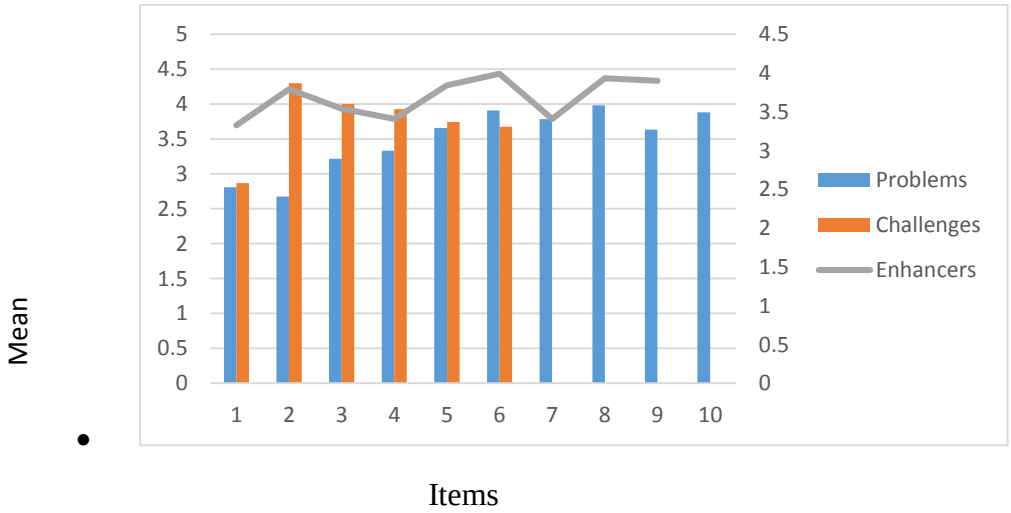

Fig. 1. Response on the use of ICT in University Education in BRACED States in Nigeria according to the mean Scores.

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DISCUSSION

Besides the questionnaire, recommendations were based on depth Interviews (in the field, face-to-face), participant observation, (field/site visits) and archival research (document review and analysis).

Figure 1 shows that the opportunities provided by ICT to support teaching and learning in BRACED States in Nigeria in respect of the mean scores are not problem-free. Many respondents disagree that there were enough ICT instructional technical support equipment in their university. As a new technology, the response is that there is the problem of inability to quickly adopt and adapt using.

Low access to ICT facilities in my university

Non possession of personal computer and some essential software hinder the use ICT in my study

Problem of poor reception (uploading and downloading of documents/files act as hindrance).

Lack of consistent and affordable electricity supply discourages the use of ICT in my University

Health related problems associated with the use of computer like eye strain and heat exposure discourage me on the use of ICT.

Inability of my university to meet the capital and running cost of establishing both the internet and intranet facilities.

Problem of resourcing issues like class size, students and teacher preparation for the new modes of learning and teaching and for the use of associated technologies

Pedagogical issues like the need to re-design courses for different delivery modes hinders me on the use of ICT

Both students and teachers' may lack the necessary skills to access, process and use information technology. There are a number of difficulties which act as barriers and prevent teachers to integrate ICT into the classroom Schoepp,. (2005).. According to Pelgrum,. (2001)., some researchers have classified the barriers into two major categories as extrinsic mad intrinsic barriers.

Teacher's barriers include lack of confidence, shortage of time, and resistance to change, or to the institution (school-level barriers) effective training in solving technical problems and lack of access to resources. Teachers' use of ICT were insufficient number of computers, lack of free time for learning and lack of classroom time for students to use computers

Part Two: Challenges

Enough capacity to accommodate increase in traffic

Insufficient internet or IP addresses (Lack of affordable connectivity and bandwidth) has affected my use of ICT

Lack of qualified teachers to teach ICT in schools

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Lack of computers and computer expertise

Lack of internet or slow connectivity

The physical environment in most rural and remote settings is characterized by some combination of heat, dust and humidity, each of which is a challenge for standard computers

Part Three: Enhancers

Among the factors that affect the technology use in these developed countries are summarized as: availability of equipment, sufficient equipment, up-to-date equipment, maintenance of the equipment, infrastructure, staff training and development, technical staff support, vision and incentives, time factor, and other relevant support.

The use of ICT in universities will improve the quality of teaching and learning

There is a significant challenge in adequately planning and financing the use of ICT in development programs.

Appropriate rooms or buildings available to house the technology

Provision of computers, internet and intranet facilities

Making computers available to all lecturers and students can enhance the use ICT

Government controls, especially taxation and censorship

Increasing commercial use of the Internet has heightened security and privacy concerns

Training and re-training is required

Adaptation to changing roles and norms However, more than two-thirds of the respondents believed that their colleagues' negative attitudes and school views about ICT do not influence their perceptions of using ICT in the classroom. More than half of the surveyed teachers (56.6 %) also stated that society views about ICT and requirements of qualifications do not hinder them to use ICT applications in the classroom. In general, other people's opinions regarding ICT do not influence the teachers' perceptions of using ICT applications in the classroom.

For example, teacher should assess the following having taught using the basic steps earlier mentioned

- Reading skills
- Writing skills
- Listening skills
- Speaking skills
- Drawing skills
- Typing skills
- Calculating skills

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CONCLUSION

The integration of information and communications technology in teaching and learning is considered as a medium in which a variety of approaches and pedagogical philosophies may be implemented. However, ICT as a teaching aid is more complicated in that it demands more specific skills from the teachers. Moreover, teachers are faced with some challenges and barriers that prevent them to employ ICT in the classroom or develop supporting materials through ICT. This study concluded that die high school teachers are familiar -with ICT and ICT usage; however, this does not necessarily mean that they integrate ICT into the curriculum. In addition, insufficient technical supports at schools and little access to Internet and ICT prevent teachers to use ICT in the classroom. Shortage of class time and time needed to learn using ICT were reported as two other key barriers for teachers to integrate ICT into the curriculum.

In order to integrate ICT into die curriculum, on the one hand, teacher training institutions should provide appropriate and sufficient support for the teachers. On the other hand, teachers should be aware of what is happening in the classroom and what changes are occurring. Therefore, possible effective uses ICT can be applied in teaching and learning, which will eventually lead to the improvement of educational programs,

Findings revealed that the gap is high and the solutions proffered include funding, provision of facilities and technical expertise, among others

Development of new broadband communication services and convergence of telecommunication with computers have created numerous possibilities to use a variety of new technology tools for teaching and learning system. The integration of computers and communications offers unprecedented opportunities to the education systems with its capacity to integrate, enhance and interact with each other over a wide geographic distance in a meaningful way to achieve the learning objectives. The growth of these communication and computer systems, their ease of use, the power and diversity of information transfer allow teachers and students to have access to a world beyond the classroom. It has the potential to transform the nature and process of the learning environment and envision a new learning culture. Interactivity, flexibility and convenience have become the order of the day in the ICT supported environment. ICT opens up opportunities for learning because it enables learners to access, extend, transform and share ideas and information in multi-modal communication styles and format. It helps the learner to share learning resources and spaces, promote learner centered and collaborative learning principles and enhance critical thinking, creative thinking and problem solving skills.

ICT can play a significant role in equalizing opportunities for marginalized groups and communities. But the paradox is that for those groups that are unable to cross the technology divide, ICT is yet another means to further marginalize them. Education has a major role to play in resolving this problem. Thus, unless ICT becomes part of both the delivery and content of education, the disadvantage will deepen and development will suffer.

But the failure to use ICT is itself a result of the digital and knowledge divides that exist, and their causes are deeply embedded in the complex historical and socio-cultural context of the country. Fortunately, with the Vision 2030 goals, the Kenyan government has begun to implement strategies that will address these paradoxes.

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Internet traffic is increasing as more people become Internet users and existing users send greater amounts of data. If the volume of traffic increases faster than the capacity of the network increases, congestion will occur, similar to the congestion that occurs when too many cars attempt to use a highway. To avoid congestion, researchers have developed technologies, such as Dense Wave Division Multiplexing (DWDM), that transfer more bits per second across an optical fiber. The speed of routers and other packet-handling equipment must also increase to accommodate growth. In the short term, researchers are developing faster electronic processors; in the long term, new technologies will be required.

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