



## APPLICATION OF ICT IN TEACHING AND LEARNING IN TERTIARY INSTITUTIONS IN EBONYI STATE

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### ABSTRACT

The study assessed the application of ICT in tertiary institutions in Ebonyi State. Three research questions guided the study. A survey research design was adopted for the study. 160 respondents constituted the population for the study. The study was conducted in 3 tertiary institutions in Ebonyi State of Nigeria. There was no sampling because the population was small. Structured questionnaire was the instrument used for data collection. Weighted mean was used to analyze the research questions. The findings of the study revealed lack of ICT facilities, and lack of trained personnel in schools to operate ICT facilities in tertiary institutions in the State. It was recommended that government should provide among other things, ICT facilities, constant workshops and in-service training for lecturers and other staff to train them on the application of ICT facilities in order to improve teaching and learning in higher institutions in the state.

**KEYWORDS:** Sustainability, Learning, Electronic communication, Availability, Innovation, Conservative behaviour.

### INTRODUCTION

From cradle, curriculum innovation has always remained an important feature of daily life as human beings strive to find solution to the array of problems confronting them. One of such problems confronting education is how to improve teaching and learning. One of the innovations to improve teaching and learning is the application of information communication and technology (ICT). Mbam (2002), defined information, communication and technology (ICT) as gathering or mobilizing, analyzing, managing or maintaining and utilizing information via computer. ICT can therefore be described as the communication and information facilities in the area of education. The use of ICT has not only become the culture of the society but, has gradually transformed the work place in all sectors of the economy. The acquisition of skills in information management and use of information and communication technology (ICT) in teaching and learning has today become a prerequisite for success and effectiveness at all levels of education. This has brought pressure to bear on higher education worldwide especially in developing countries like Nigeria. Again the Millennium development goals has also made it mandatory for teacher education programme to ensure that teachers have access to and are able to integrate ICTs into their classroom practices (UN 2004). Learning cannot occur when there is absence of teaching. Teaching and learning process inevitably is involved in information passage from the teacher (sender) to the learner (receiver) through different means varying from verbal communication to the most recent electronic communication. Learning in the context of this work is the process of giving lessons to students in a school, college or

university to help them learn or acquire desirable knowledge and skills. The application of information and communication technology (ICT) in teaching and learning means the use of digital equipment to all areas of teaching and learning activities in the school. Several benefits are accruable in the application of ICT in teaching and learning process as well as the relationship between the teachers and the learners. The following reasons have been advanced by some people in favour of the use of ICT in teaching and learning. Attama (2001), said that the ICT is very useful in teaching both large and small classes of students and that it's use or application will change students from passive learners to active and effective learners. Use of ICT also enables student to play active roles in the teaching –learning process as they become explorers, producers, self directors and managers of their own learning. Ene (2001), states that ICT makes communication between persons and establishment more convenient faster and precise.

ICT also helps students learn better and consequently enhance performance. Students spent longer time in learning text but when they use ICT they save time. Use of computers also enables students to be organized in their study. It provides students opportunity to work and learn on their own. This means that ICT offers a reality of experiences which stimulate and enhance self activity on the part of the learner. Use of ICT offers students opportunities to increase their interest and involvement by the one to one relationship provided for the students and the computers. The teaching and learning of courses are made easier through the use of internet, computers, GSM, etc. Software that combines text, sound and colourful motion images can be used to provide challenging and

authentic content that will arouse students' interest in the learning.

The most critical challenge in the successful integration of ICTs into teacher preparation and practices however, is the extent to which teachers have themselves acquired the knowledge and skills for modeling the use of ICTs in their own teaching practices (UNESCO 2002). There is still inadequate information on the state of availability and access to and use of ICTs for the purpose of teaching and learning in tertiary institutions in Nigeria and more specifically in Ebonyi State. Attama (2008) spoke of the backwardness of Nigeria in ranking levels on countries that are prepared through adequate training on the use of ICT. According to Attama Nigeria is ranked 91<sup>st</sup> out of 115 countries surveyed. This signifies a decline in Nigeria's state of preparedness and slow access to basic equipment like computers and internet connectivity. This situation has informed the researchers to investigate into the application of ICTs in teaching and learning in tertiary institutions in Ebonyi State. Major challenges often reported militating against application and use of ICT in teaching and learning include infrastructural limitations, operational challenges, and financial constraints with respect to the sustainability of the application, teachers' unwillingness, and lack of lesson plan, inaccessibility and unavailability of ICT gadgets, lack of qualified technical support among others (Eze 2010). At teachers' level, conservative behaviour, i.e. resistance to change, attitude towards computers, and constraints on knowledge of relevance of e-learning support for ICT use, ease of use and lack of time for use are few of the factors found to be affecting the application and use of ICT generally in classroom practices (Uwadia and Okera 2000). The purpose of this study therefore is to determine the extent to which ICT facilities are utilized in teaching and learning in tertiary institutions in Ebonyi State. The study sought to identify ICT facilities available in the institutions for use, availability of man power (Personnel) to handle the ICT facilities and identify constraints to the application of ICT in tertiary institutions in the State.

#### METHODOLOGY

Three research questions were developed and answered by the study. The study is a survey research design. Survey design as explained by Nworgu (1991) is a procedure used in obtaining data from sample or relevant population that is familiar with the ideas relating to the objective of the study through the use of interview, questionnaire etc. Therefore, the questionnaire was used to collect data for

this study. The study was carried out in Ebonyi State of Nigeria using three tertiary institutions in the state: Ebonyi State University Abakaliki, Ebonyi State College of Education Ikwo and Federal Polytechnics Unwana. The Population for the study was 160 made up of 120 lecturers and 40 technologists/Technicians from the three institutions. There was no sampling since the population was small. A 15 item structured questionnaire was used to collect data from the respondents. The questionnaire had three sections; A, B, and C. Section A was used to collect information on the availability of ICT facilities in the institutions. Section B obtained information on the level of trained personnel to handle ICT facilities in the institutions and section C obtained information on the constraints to the application of ICT in teaching and learning in the institutions. The Questionnaire items had a 4 point response scale of strongly agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with a corresponding value of 4,3,2,1 respectively.

The instrument was face validated by three experts, Cronback alpha correlation method was used to obtain the reliability of the instruments which yielded a co-efficient of 0.84. 160 copies of the Questionnaire were administered to the respondents by the researchers. All the copies were retrieved after two weeks. Data collected for the study was analyzed using weighted mean and Standard deviation to answer the research questions. The arithmetic mean was computed and it yielded 2.50 which were used for taking decision on each item. Any item with a weighted mean of 2.50 or above was regarded as agreed while any item whose weighted mean is less than 2.50 was regarded as Disagree. The Standard deviation was used to determine the closeness or otherwise of the responses of the respondents from the mean. Any item with a standard deviation of 1.96 or below showed that the respondents were close to the mean and not too far from one another in their responses indicating that the item was valid. But any item with a standard deviation above 1.96 indicated that the respondents were not close to the mean and therefore the item was less valid.

#### RESULTS

The results of the study were obtained from the research questions answered. They were presented in table one, two, and three below.

##### Research Question 1

What are the available ICT facilities for teaching and learning in Tertiary Institutions in Ebonyi State?

**TABLE1:** Mean Ratings of Respondents on ICT Facilities available for Teaching & Learning. (N=120)

S/N	ITEM STATEMENT	$\bar{X}$	SD	Decision
1	Micro-teaching laboratories were established in schools and are well equipped for use by lecturers & students	1.88	0.60	D
2	Power points are highly in use by lecturers in schools as an instructional media	1.63	0.70	D
3	Computers are common instructional media in schools and they are enough	1.88	0.78	D
4	Overhead projectors are available for use in teaching large classes in schools	1.38	0.48	D
5	Internet services are installed and are available for use by students and lecturers.	1.50	0.71	D

Key:  $\bar{X}$ =mean, SD=standard Deviation, A=agree, D=disagree.

The data in table 1 showed that items 1-5 had their mean values ranged from 1.38 to 1.88. This means that the respondents disagreed to the availability of ICT facilities in the schools. This means that there is lack of ICT facilities for effective teaching and learning in Tertiary Institutions in the State. The values of the standard deviation ranged from 0.58 to 0.71, indicating that the

respondents were not too far from the mean and that they are close to one another in their responses.

#### Research Question 2

Are there trained personnel to handle ICT facilities for teaching and learning in Tertiary Institutions in Ebonyi State?

**TABLE 2.** Mean Ratings of Respondents on Trained Personnel to handle ICT Facilities for Teaching and Learning. (N=160)

S/N	ITEM STATEMENT	$\bar{X}$	SD	Decision
6	Professors and PhD holders are more competent in operating ICT facilities than other levels of lecturers and staff	1.88	0.60	D
7	There are few technologists and technicians to handle and operate ICT facilities.	2.50	1.12	A
8	Majority of lecturers have ICT devices and full knowledge of how to operate them for teaching and learning.	1.50	0.71	D
9	Technicians/Technologists are more competent in the operation of ICT facilities.	3.25	0.66	A
10	Schools have enough technicians to operate ICT facilities?	2.13	1.05	D

Key: X=mean, SD=standard deviation, A=agree, D=disagree.

The data presented in table 2 revealed that items 6, 8 and 10 with mean of 1.88, 2.13 and 2.13 were less than 2.50. This indicated that the respondents disagreed with the contents of the items. Items 7 and 9 with the mean of 2.50 and 3.25 and corresponding standard deviation of 1.12 and 0.66 respectively indicated that technologists/Technicians are more competent in the operation of ICT facilities and possess the skill required to operate ICT facilities but that

they are inadequate in the Schools. The data revealed that as at the time of this study, schools (tertiary institutions in the State) do not have enough technicians or special people trained to operate ICT facilities.

#### Research Question 3

What are the constraints confronting the application of ICT facilities for teaching and learning in schools?

**TABLE 3.** Mean Ratings of Respondents on the Constraints Confronting the Application of ICT in Teaching and Learning in Tertiary Institutions in the state. (N=160)

S/N	ITEM STATEMENT	$\bar{X}$	SD	Decision
11	ICT Devices are inadequate in schools	3.88	0.33	A
12	Most Lecturers don't know how to operate ICT devices	2.88	0.78	A
13	Inadequate power supply is a big challenge facing ICT application	3.63	0.48	A
14	Lecturers unwillingness to change their teaching practices contribute to a problem in the use of ICT in teaching and learning	2.38	0.99	D
15	Inadequate funding of educational resources by Government is a big problem to the availability and use of ICT in teaching and learning.	3.50	0.50	A

Key: X=mean, SD=standard deviation, A=agree, D=disagree.

The data presented in table 3 showed that items 11, 12, 13, and 15 had their mean ranged from 2.88 to 3.88. These showed that inadequate ICT Devices, Teachers lack of knowledge and skills, unreliable and inadequate power supply and inadequate funding were identified as major constraints constituting hindrance to the use of ICT in teaching and learning in tertiary institutions in the State.

#### DISCUSSION

The findings of the study reveal that there is lack of ICT facilities in the tertiary institutions in Ebonyi State. The study also found out that there are inadequate trained personnel (technicians/Technologists) to handle ICT facilities in the schools. The study identified the following ICT facilities as been inadequate for effective teaching and

learning: micro teaching lab, power points, computers, overhead projectors and internet services. The study also identified inadequate funding by government, teachers lack of technical skills and unreliable power supply as some of the major constraints in the use and application of ICT in teaching and learning.

The findings are in line with the finding of Eze (2001) who found out that availability of instructional facilities increases the degree of success of teaching and learning. The study is also in line with the findings of Attama (2001), who found out that ICT is very useful in teaching both large and small classes of students and that its use will change students from being passive learners to active and effective learners. This study has revealed that tertiary institutions in the state lack ICT facilities for improved

teaching and learning and that there is the need for funding, training and retraining of staff on the availability and application of ICT in teaching and learning.

### CONCLUSION

The following conclusions were drawn based on the findings of the study. There is urgent need for the provision of ICT facilities for effective teaching and learning in our various Tertiary Institutions in the state. There is hardly any effective teaching and learning in any learning environment (schools) where instructional facilities are lacking. The use of ICT facilities in tertiary institutions at this computer age is indispensable for effective teaching and learning. The provision and use of ICT facilities will facilitate the work of the teacher, improve the learning environment, motivate students' interest and enhance their understanding.

### RECOMMENDATION

From the finding of the study, it is recommended that:- Government should strive to provide ICT facilities in Tertiary Institutions to enhance teaching and learning. There should be constant workshops and in-service training for lecturers and other support staff on the use and application of ICT facilities in teaching and learning. The energy sector should be improved so as to ensure steady power supply especially to higher institutions in the State.

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