

## EXTENT OF AVAILABILITY AND UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) TOOLS IN TEACHING AND LEARNING IN PUBLIC COLLEGE OF EDUCATION IN ENUGU STATE

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### Abstract

*The study was conducted ascertain the extent of availability and utilization of Information and Communication Technology (ICT) tools in Teaching and Learning in public colleges of Education in Enugu State. Descriptive survey research design was adopted for the study. The population of the study consisted of 1,200 pre-service and in-service teachers drawn from College of Education, Eha-Amufu and Enugu State College of Education (Technical). From the whole population, 5% was drawn which gives a sample size of 125. A questionnaire titled "ICT Availability and Utilization Questionnaire" (ICTAUQ) was used for data collection. The questionnaire contained 42 items, which were divided into four sections. The instrument was validated by three experts. The data collected were analysed using percentage, mean and standard deviation. The study revealed that some ICT tools are not available in Colleges of Education in Enugu State. In addition, the study further revealed that the available ICT tools in the Colleges of Education are not adequate and sufficiently utilized in teaching and learning. The study also revealed poor funding, unstable electricity supply, and time constraints in using ICT in teaching and learning, among others as problems affecting effective utilization of ICT tools in teaching and learning in the Colleges of Education surveyed. Based on these findings, the study recommends among others that the government should equip Colleges of Education with adequate ICT facilities for effective teaching and learning as well as organize ICT training workshops for teachers in Nigerian Colleges of Education.*

**Keyword:** Information and Communication Technology, Pre-service teacher, In-service teacher, College of Education

### Introduction

The 21st century witnessed tremendous development in Information and Communication Technology (ICT) which helped humans invent new ways to live and work. ICT plays a vital role in supporting powerful, efficient management and administration in education sector (KSOU & CL, 2016). The broad scope and use of information technology in administration across the globe made a revolutionary change in service delivery and transparency, which also encouraged the quality of work and living patterns (Abdul, 2021). The pervasiveness of Information Communication Technology (ICT) has brought about rapid technological, political and economic transformation which has eventuated in the network society organized around ICT (Akawu, 2009).

Information and Communication Technology (ICT) is referred to as the technologies used for accessing, processing, gathering, manipulating, and presenting or communicating information which could

include software, hardware, and connectivity (Anderson & Baskin, 2012). Ngwu (2014) defined ICT as the processing, storage, retrieval and transmission of data and information. ICT has gained popularity over the past 20 years and this has led to changes in the way educational institutions carry out activities and processes not only in teaching and learning process but also in administrative processes and management of higher educational institutions (Abu, 2016) These technologies include computers, the Internet, broadcasting technologies (radio and television), and telephony.

ICT began to be placed in schools in the early 1980s and recommendation of several researchers proves that ICT will be an important part of education for the next generation (Yelland 2021). ICT utilization in teaching and learning is becoming glaringly vital owing to its effect in acquisition of knowledge and skills. Dawes (2018) is of the view that ICT has the potential to support education across the curriculum

and provides opportunities for effective communication between teachers and students. In line with this, the Federal Government of Nigeria in partnership with Nigeria Communication Commission (NCC) has made effort to provide laptops to all the teacher educators in Federal Colleges of Education in Nigeria. This is in a bid to integrate the use of ICT resources by teacher educators in teaching and learning in Nigerian school system (Ngwu 2014). ICT also provides quicker and easier access to more extensive and current information. However, combining new technologies with effective pedagogy has become a daunting task for both initial teacher training and in-service training institutions

Teacher education now known as College of Education, according to (Ibidapo-Obe, 2007) is an institution which aims at equipping teachers with desirable attitude, skills and knowledge so as to make them effective and efficient in their work in accordance with the needs of the society at any point in time. Colleges of Education started springing up in Nigeria since 1895 when the Hope-Waddel Training Institute was established in Calabar, followed by St Andrew Colleges Oyo in 1896 (Ibidapo-Obe, 2007). Ibidapo-Obe further states that Colleges of Education were established to help in the training of teachers. Ogah (2007) opines that Colleges of Education aims at training and equipping the in-service and pre-service teacher with relevant tools necessary for enhancing the knowledge and skills of teaching.

In-service teacher designates a teacher that has certification or is already teaching in a classroom (Priyanka K, & Ishrat N, 2021). Teacher is not only the person providing only with the necessary skills and knowledge needed to carry out their teaching jobs as well as for professional growth (Osunde & Omoruyi, 2004). Pre-Service Teachers in other hand are the group of teachers who are enrolled under the teacher training programme like B.Ed (Priyanka K, & Ishrat N, 2021). These teachers are called pupil teachers also. This time is learning time for the pupil teacher to deal with the students in future. This is the very important phase for the pupil teacher as they learn different approaches and strategies to deal with the children's in future (Priyanka K, & Ishrat N, 2021).

Based on the foregoing, the availability, utilization, an effective implementation of ICT in teacher training programmes is important in the actualization of the goals and objectives of the National Commission for College of Education (NCCE) which is

aimed at training and equipping in-service and pre-service teachers with the required knowledge and skills for effective application of ICT in teaching processes (Egomo, Enyi and Tah , 2012). Therefore, the aim of this study is to determine the extent of availability and utilization of information and communication technology (ICT) tools in teaching and learning in Colleges of Education in Enugu State.

### **Purpose of the Study**

The general purpose of this study is to ascertain the extent of availability and utilization of Information and Communication Technology (ICT) tools in Teaching and Learning in public college of education in Enugu State. Specifically, the study tends to ascertain the:

1. extent of availability of ICT tools in teaching and learning in Colleges of Education in Enugu State;
2. degree of utilization of ICT tools in teaching and learning in Colleges of Education in Enugu State;
3. problems affecting ICT utilization in teaching and learning in Colleges of Education in Enugu State;

### **Research Questions**

1. To what extent are ICT tools available in teaching and learning in Colleges of Education in Enugu State?
2. To what extent are ICT tools utilized in teaching and learning in Colleges of Education in Enugu State?
3. What are the problems affecting ICT tools utilization in teaching and learning in Colleges of Education in Enugu State?

### **Methodology**

Descriptive survey research design was used to carry out this research. The survey targeted two public Colleges of Education in Enugu State which are Federal College of Education, Eha-Amufu and Enugu State College of Education (Technical). The choice of these colleges of education is because the study targeted only public colleges of education in the state. The population of the study was made up of 2,500 respondents from two Colleges of Education in Enugu State. Simple random sampling techniques was used to the get the sample population of 125 pre-service and in-service teachers. The relevant data for this study was collected using a questionnaire titled "ICT

Availability and Utilization Questionnaire" (ICTAUQ). The questionnaire contained 42 items, which were carefully structured to elicit responses from the respondents. The questionnaire consists of two parts: A and B. Part A contained demographic information of the respondents, while part B elicits information on the extent of availability and utilization of information and communication technology (ICT) tools in teaching and learning in Colleges of Education in Enugu State, from the respondents.

The instrument for data collection for this study was validated by three experts from Computer Education Unit, Department of Vocation Teacher Education, University of Nigeria, Nsukka. The experts were requested to look at the researcher's instrument so as to check its suitability for the study. Based on the

suggestions and recommendations of the experts, some items were modified while some were removed. However, all the comments by validates were carefully considered in the final draft of the questionnaire. The researcher used the validated instrument to collect the responses from teachers and students in Colleges of Education surveyed. The questionnaire was distributed to the 125 sampled in-service and pre-service teachers in the Colleges of Education of the study area. The data collected for this study was analysed using frequency and percentage, mean scores and standard deviation as statistical tools. The frequency and percentage and mean were used to answer the research questions while standard deviation was used to determine the close relationship between the respondents' opinions.

## Results

Table 1

Percentage, Mean Ratings and Standard Deviation of the Respondents on the Extent of Availability of ICT Tools in Teaching and Learning in Colleges of Education Enugu State

S/N Item statements	AVAILABILITY			ADEQUACY		
	F	%	Remark	$\bar{X}$	SD	Remark
1. Computer Laboratory	100	80.0	Available	1.74	0.46	Not Adequate
2. Computer System	101	80.8	Available	1.59	1.10	Not Adequate
3. Database	101	81.6	Available	1.92	0.55	Not Adequate
4. Digital Camera	25	20.0	Not Available	0.00	0.00	-
5. E-learning portal/platform	22	17.6	Not Available	0.00	0.00	-
6. E-library service	25	20.0	Not Available	0.00	0.00	-
7. Interactive white board	100	80.0	Available	1.22	0.70	Not Adequate
8. Internet facility(LAN, wireless)	105	84.0	Available	1.36	0.68	Not Adequate
9. Maintenance workshop	32	25.6	Not Available	0.00	0.00	-
10. Multimedia projector	85	68.0	Available	1.21	0.54	Not Adequate
11. Printer	101	80.8	Available	1.86	1.18	Not Adequate
12. Scanner	86	68.8	Available	1.47	0.89	Not Adequate
<b>GROUND MEAN</b>				<b>1.55</b>	<b>0.51</b>	Not Adequate

Key: *F* = Frequency; *%* = Percentage;  $\bar{X}$  = Mean; *SD* = Standard Deviation

The data presented in Table 1 shows that items that are below 50% are not available while those above 50% are available. Therefore, table 1 revealed that Digital Camera, E-learning portal/platform, E-library service and Maintenance workshop have their percentages below 50% ranging from 17.6% to 25.6% and therefore are not available in the Colleges of Education in Enugu State. However, the other items

like Computer Laboratory Computer System, Database, Interactive white board, Internet facility (LAN, wireless), Multimedia projector, Printer and Scanner have their percentage above 50% ranging from 68.0% to 84.0% and therefore are available in the Colleges of Education in Enugu State.

The data presented in table 1 also show that all the available items are not adequate in Teaching

S/N	ITEM STATEMENTS	Mean ( $\bar{X}$ )	Std. Deviation	Remark
1.	E-Learning platform for online learning	1.93	0.72	Low Extent
2.	Smart board for instructional demonstration	1.74	0.73	Low Extent
3.	Multimedia projector in classroom teaching and learning	2.03	0.86	Low Extent
4.	Computer system in classroom teaching and learning	1.95	0.62	Low Extent
5.	Database for keeping student and lecturer record	2.46	0.93	Low Extent
6.	IT centre for computer practical classes	1.98	0.78	Low Extent
7.	E-library for research purposes	1.91	0.68	Low Extent
8.	Scanner for capturing of images and documents to computer	2.04	0.69	Low Extent
9.	Digital camera for capturing instructional videos and pictures	2.05	0.83	Low Extent
<b>GRAND MEAN</b>		<b>2.01</b>	<b>0.76</b>	<b>LOW EXTENT</b>

and Learning in Colleges of Education in Enugu State with the mean score ranging from 1.21 to 1.92.

Based on the grand mean ( $\bar{X} = 1.55$ ) which falls under the not adequate rule, it therefore

established that those ICT tools that are available in Colleges of Education are not adequate

The standard deviation on each of the items ranged from 0.00 to 1.18 implying that the respondents were similar in their opinions

**Table 2**  
**Mean Ratings and Standard Deviation of the Respondents on the Extent of Utilization of ICT Tools in Teaching and learning in Colleges of Education in Enugu State**

Results in table 2 revealed that all the items are lowly utilized in Teaching and Learning in Colleges of Education in Enugu State with the mean score

that ICT utilization in teaching and learning in Colleges of Education in Enugu State is low.

The standard deviation on each of the items ranged from 0.62 to 0.86 implying that the respondents were similar in their opinions.

**Table 3**  
**Mean Ratings and Standard Deviation of the**

	ITEM STATEMENT	Mean( $\bar{X}$ )	Std. D	Remark
1.	High cost of ICT tools	3.65	0.60	Strongly Agree
2.	Inadequate of computers systems in laboratories and classroom	3.37	0.62	Agree
3.	Inadequate skills in the use of ICT tools by lectures and students	3.47	0.59	Agree
4.	Lack of finance to subscribe for monthly internet usage	3.45	0.60	Agree
5.	Lack of interest of teachers and students in ICT utilization	3.51	0.59	Strongly Agree
6.	Poor maintenance of computer laboratory	3.57	0.63	Strongly Agree
7.	Slow adaptation to new technology by the lecturers and students	3.74	0.49	Strongly Agree
8.	Time constraint in using ICT recourses in teaching and learning	3.66	0.56	Strongly Agree
9.	Unstable power supply and lack of alternative source of power	3.66	0.55	Strongly Agree
10.	Poor funding for procurement and upgrade of ICT tools	3.61	0.52	Strongly Agree
<b>Grand Mean</b>		<b>3.57</b>	<b>0.57</b>	<b>Strongly Agree</b>

ranging from 1.91 to 2.46.

Based on the grand mean ( $\bar{X} = 2.01$ ), which falls under the low extent rules, it therefore established

**Respondents on the Problems Affecting ICT tools utilization in Teaching and Learning in Colleges of Education in Enugu State**

Results in table 3 show that items 2, 3, 4 were on agree rule with mean scores ranging from 3.37 to 3.47 while all other items were on the strongly agree rule with mean scores ranging from 0.52 to 0.63.

Based on the grand mean ( $\bar{X} = 3.57$ ), the respondent strongly agreed that the item statements are the problems affecting ICT utilization in teaching and learning in Colleges of Education in Enugu State.

The standard deviation on each of the items ranged from 0.494 to 0.627 implying that the respondents were similar in their opinions.

### Findings of the study

The findings of the study among others revealed that most of the ICT resources are not available in the Colleges of Education. Even those ICT tools that are available like computer laboratory, computer systems, database, interactive white boards, internet facilities, multimedia projectors, printers and scanners are not adequate. This is in agreement with Oyediji, Saliu, and Oluwolola (2008) who stated that there is inadequate provision of technological equipment and laboratory facilities to impart adequately on students' knowledge on ICT in enhancing learning and development of Education in Nigeria. The non-availability of ICT tools in Colleges of Education had made it impossible for lecturers to effectively utilize or implement ICT resources in teaching-learning process.

The study further showed that the extent of utilization of ICT resources in teaching and learning in Colleges of Education is still very low. This finding is in line with the findings of Ngwu (2014) who found out that ICT utilization is very low in Ehamufu College of Education. This calls for urgent attention and assistance to intensify the utilization of ICT in teaching and learning process in the College of Education.

support staff among others.

The study also showed that apart from the problem of availability there are other factors that hinder the effective utilization of ICT resources which are itemized in table 3. Table 3 contains 10 item statements with all the items in agreed interpretation. This shows that there are many factors that affect the effective utilization of ICT resources. Result in Table 3 also revealed that teacher educators lack relevant skill for ICT utilization that will help improve and promote teaching-learning process. This finding is in agreement with Etuk (2008) who found out that teachers have not acquired ICT skills that will help each learner recognize his/her unique talents and provides relevant experiences to strengthen their natural ambition that will be beneficial to himself, his employer and society.

### Conclusion

This study was carried out to determine the extent of availability and Utilization of ICT tools in teaching and learning of Colleges of Education in Enugu State. The study revealed that some ICT tools are not available in Colleges of Education in Enugu state. Even those that are available like computer laboratory, computer system, database, printer and scanner are not adequate. It was observed from the study that most of the ICT tools are not sufficiently utilized in teaching and learning in the Colleges of Education, which has a negative impact on teaching and learning. In addition, the study revealed that there are some problems affecting ICT utilization in teaching and learning in the Colleges of Education surveyed, which include high cost of ICT tools, poor funding for procurement and upgrade of ICT tools among others. The findings further highlighted some of the effective strategies for ICT implementation which include provision of adequate number of computers for pre-service and in-service teachers in Colleges of Education, provision of internet services, recruitment of technical

### References

- Anderson, J. & Weert, T. (2012). *Information and communication Technology in Education. A Curriculum Programme of Teacher Development*. Paris: UNESCO.
- Etuk, E. (2008). *Creativity and Global challenges Education in the information Age: Global challenges and enhancement strategies*. *Proceeding of 1st international conference of the Faculty of Education*.
- Federal Government of Nigeria (2004). *National Policy on Education*. Revised Edition. Federal Ministry of Education, Abuja, Nigeria.

- Federal Republic of Nigeria (2001). *Nigerian National Policy For Information Technology*. Abuja: NITDA. Retrieved 23<sup>rd</sup> of January, 2004, from <http://www.nitda.gov.ng/docs/policy/ngitpolicy.pdf>
- Federal Republic of Nigeria (2004). *National Policy on Education (4th Edition)* Abuja, NERDC press.
- Gulbahar and Guven (2008) A Survey on ICT Usage And The Perceptions of Social Studies Teachers In Turkey. *Educational Technology & Society* , vol. 11 , no. 3, pp. 37 -51, 2008 retrieved <http://www.ijiet.org/papers/259-IT0033.pdf>
- Gulbahar Y. and Guven I. (2008) A survey on ICT usage and the perceptions of social studies teachers in Turkey. *Educational Technology & Society*, vol. 11, no. 3, pp. 37-51, 2008.
- Ibidapo-Obe (2007); The Challenge of Teacher Education in Nigeria: The University of Lagos Experience. *Paper presented at the Second Regional Research Seminar for Africa organized by the UNESCO Forum on Higher Education, Research and Knowledge in Accra, Ghana from 22-24 March 2007*. Retrieved: 201/09/2015 from [www.unesco.org/.../IBIDAPO-OBE.pdf](http://www.unesco.org/.../IBIDAPO-OBE.pdf)
- Ngwu O.G. (2014) Assessment of Availability and Utilization of ICT Resources in Teaching in F.C.E. Eha-Amufu Enugu Nigeria. *The International Conference on E-Learning in the Workplace*. www.icelw.org |
- Yelland, N (2001). *Teaching and Learning with Information and Communication Technologies (ICT) for numeracy in the early childhood and primary years of schooling* Australia: Department of Education, Training and Youth Affairs. Retrieved www.icelw.org.