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## TEACHERS' ACCESS AND PREPAREDNESS TO USE INFORMATION AND COMMUNICATION TECHNOLOGIES IN TEACHING AND LEARNING IN ENUGU STATE, NIGERIA

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### Abstract:

*This study was designed to investigate teachers' access and preparedness to use Information and Communication Technology (ICT) in teaching and learning in Nsukka Education Zone, Enugu State, Nigeria. The study adopted descriptive survey research design. 204 teachers were selected using multi-stage stratified random sampling technique. Three research questions guided the study. The instruments used for data collection were Teacher's ICT Preparedness Scale (TICTPS) and Teachers ICT Access Scale (TICTAS). The data collected was analyzed using mean and standard deviation. The findings revealed that majority of the teachers in the zone do not have access to ICT facilities, some of the teachers are not prepared to use ICT facilities in teaching. Based on the findings, it was recommended that federal government should provide ICT facilities to schools in the country, organize in-service trainings that will enhance teachers' ICT skills, and that teachers on their own should find a way to improve their ICT skills.*

### KEY WORDS:

Teachers, Information and Communication Technology, access and preparedness.

### INTRODUCTION

Information Communication and Technology (ICT) is referred to as technologies that provide access to information through telecommunications (Techterms.com, 2013). It is similar to Information Technology (IT) but focuses primarily on communication technologies. These include the internet, wireless networks, cell phones, and other communication mediums. ICT can also be seen as the acquisition, analysis, manipulation, storage and distribution of information or data from the point of production to the place of consumption (De Watterville and Gilbert, 2000). Deductively, ICT could be referred to as a set of activities which facilitate by electronic means the processing, transmission and display of information. In this view, it involves the use of technologies to share, distribute, gather and communicate information using computer hardware and software and computer networks.

Keeping in view its complex nature and multi-dimensional applications, the use of ICT may be viewed in different ways—economically, politically, religiously, culturally, medically, and educationally. The use of ICT facilities in this context focuses on education and teachers' access and preparedness to use it in teaching. Teachers' use of ICT in teaching is seen as a powerful way to contribute to educational

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upliftment, better prepare students for the information age, improve learning outcomes, students' competencies, and equip them with survival skills for the information society (National Information Technology Development Agency (NITDA, 2001). ICT facilities in teaching stimulate the students and provide the teacher with tools to carry out diagnostic testing and research work (Ayonmike and Akinwale, 2011). A successful initiation and implementation of use of ICT in school programme and education depend strongly on the teachers' access and preparedness to integrate ICT in teaching.

Access is the right to obtain or make use of, or take advantage of something. Teachers' access to use ICT facilities requires learning, training, and affordable access to the ICT (Sonia, 2002). Access to the use of ICT in education sector could be very important in teaching and learning as it could lastingly invigorate the still hesitant build-up of teaching in Nigeria generally and in Nsukka Education Zone particularly. But the question still remains; do teachers in the zone have access to ICT facilities?

The Federal Government of Nigeria (FGN) in recognition of the prominent role of ICT in the modern world and importance of ICT use in education has integrated the use of ICT into Nigerian education and have made provision for basic infrastructures and training of teachers at the primary school, junior secondary school and senior secondary school level (FGN, 2004; Adomi, 2010). To actualize the above notion, teachers who are the facilitator, mediator and model in the field of learning are encouraged to have access and be prepared to use ICT not only in the classroom but even in their individual homes. In line with the above assertion, several researches have been carried out on the needs for teachers' use of ICT facilities in teaching and learning, (Okebukola, 2004; Yusuf, 2005; FGN, 2006; Adomi, 2010). However, teachers' access to the use of ICT in teaching and learning seem to be quite unimpressive.

For instance, despite the large investments in ICT facilities across school systems, there is reason to question whether all teachers have ready access to those facilities, and whether the access that they have is adequate for their teaching and administrative needs (Kay, 2006; Zhao & Frank, 2003). Lankshear and Snyder (2000), for example, stated that some parts of the same school can have very high levels of facilities while others do not have. Hernandez-Ramos (2005) explained that some teachers are unaware that computers are, in fact, available for them to use while some teachers perceive other impediments to their use of those computers. Such impediments may relate to power supply within schools, inconvenient location of computers, or restrictions on access times or teachers preparedness to use those available facilities.

The term preparedness means the "state or condition of being prepared; readiness" and emphasizes the attitudinal aspect of being prepared to do something. Preparedness to use ICT has to do with awareness, knowledge, attitude, as well as getting skilled in the use of information technology (Aremu & Adediran, 2011). In this context, teachers' preparedness to use ICT includes teachers' readiness which emphasizes the attitudinal aspects to use ICT facilities in teaching and learning. Wild (1995) in Aremu and Adediran (2011) asserted that the degree of preparedness of teachers to use ICT is traditionally measured in terms of their knowledge, skills and attitudes regarding the computer. Knowledge, skills and right attitudes have also been identified as important factors in teachers' preparedness to use ICT (Wong, 2002). Therefore, the level of teachers' preparedness will be dictated in this work by their level of knowledge, skill and attitude to information technology.

Providing some insight into the issue of teacher preparedness to use ICTs for teaching and learning, Granger, Morbey, Owston & Wideman (2002, p.487), explain that the "relationship between teachers' ICT skills and successful implementation is complex." It was further suggested that there are a range of contributing issues including teacher "attitudes, philosophies, communication, and access to skills training", availability of the necessary equipment, support, and education. Baskin and Williams (2006, p. 10) posit that human factors are "the most critical in nurturing the ICT culture and growing the critical mass of teachers ability to sustain the use of ICTs effectively in their teaching". Wang (2002, p.152) concurs and asserts that "pre-service teachers" beliefs and perceptions play a crucial role in shaping their future teaching behaviours.

From these findings it would seem clear that human factors such as attitudes and beliefs have a significant influence on teacher behaviours, and consequently their preparedness to use ICTs for teaching and learning. More recently, the importance of professional experience placements in the preparation of teachers for the effective use of ICTs in their teaching has been recognized by a number of researchers both national and international (Duran, Fossum & Luera, 2006; Steketee, 2005; FGN, 2006; Adomi, 2010). Evidence, therefore, abound that teachers' access and preparedness influence successful integration of ICT into teaching (Hew & Brush, 2007; Keengwe and Onchwari, 2008). If teachers' attitudes are positive toward the use of educational technology, then they can easily provide useful insight about the adoption and integration of ICT into teaching and learning processes.

Despite ICT's importance in teaching and learning processes, several researches have it that ICT facilities use in Nigerian educational institutions are low (Balogun, 2006; Imogie, 2007; Omoifer, 2009).

Kaku (2005) in a study on application of ICT in secondary school biology, it was found that there is low availability of ICT in Nigerian schools. Peter and Rexwhite, (2012) found that a great deal of instructional and administrative work in secondary schools in Delta state is still carried out manually as a result of lack of high cost of computer hardware and software for their application, weak infrastructures, inadequate skilled ICT professionals/teachers, unwillingness of teacher to adapt to new trends of teaching among others. Studies by Anaekwe (2002); Okeke and Edika (2011) reveal that secondary school teachers in Anambra State lack skills in utilization of ICT in teaching. However, Okwudishu (2005) discovered that the unavailability of some ICT components in schools hampers teachers' use of ICTs for proper teaching and learning in schools. Kaku, (2005) reported a similar finding that lack of adequate search skills and access points in the schools were reported as factors inhibiting the use of the internet by secondary school teachers in Nigeria.

This is without exception of schools in Nsukka Education Zone. The reason had been among others, inadequate ICT facilities, lack of training in usage, lack of proper financing of learning resources and teachers' poor access and use of ICT facilities. It has been observed by Goshit (2006) that most schools, both private and government, do not have ICT training programmes. This could either be due to inaccessibility of ICT facilities or teachers not being prepared to use them. The development of skills and knowledge in the use of ICTs is increasingly deemed to be an important aspect of preparation for participation in an information society, as in the use of ICTs to enhance the quality of teaching and learning in classrooms. This paper investigated the access and preparedness of secondary Education teachers in Nsukka Education Zone to use ICTs in teaching and learning in the classroom.

#### STATEMENT OF THE PROBLEM

In spite of efforts made to ensure that ICTs are available and used in Nigerian secondary schools, the level of uptake is still low. It has been observed that most schools within the study area do not offer ICT training programmes. Among the few that offer it, there is inefficient capacity building in handling it. Teachers are not prepared to use ICT in teaching; this could be attributed to low access to ICT facilities and training for teachers in the schools within the zone. The problem of the study put in question form is: To what extent are teachers in Nsukka Education Zone, Enugu State, Nigeria prepared to integrate ICT in teaching process and what is the level of their access to ICT facilities in schools?

#### PURPOSE OF THE STUDY

The general purpose of the study is to investigate the level of access and preparedness to use ICT facilities by teachers.

#### Specifically the study sought to:

1. Ascertain the extent of teachers' access to ICT facilities in Nsukka Education Zone, Enugu State, Nigeria.
2. Determine the extent of teachers' preparedness to use ICT facilities in teaching.

#### Research Question

1. What is the extent of teachers' use of ICT facilities in teaching in Nsukka, Education Zone, Enugu State, Nigeria?
2. What is the extent of teachers' preparedness in the use of ICT facilities in teaching in Nsukka, Education Zone, Enugu State, Nigeria?

#### Methods

The researchers employed descriptive survey research design in carrying out the study. Survey research design according to Ali (2006) is a research design in which a group is studied by collecting and analyzing data from sample considered representative of the population or entire population. The design is considered appropriate for the present study because a sample of teachers from the zone were studied and used to represent all the teachers in Enugu State.

The area of the study is Nsukka Education Zone, Enugu State, Nigeria and it is comprised of three Local Government Areas which include: Nsukka, Igbo-etiti and; Uzo-Uwani. The population of the study comprised of 2004 teachers in public secondary schools in Nsukka Education Zone, specifically 1292, 470 and 242 teachers respectively (source: Planning, Research and Statistics (PRS) Unit, 2013) Post Primary

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School Management Board (PPSMB) Zonal Office Enugu, 2013). The total sample size for the study is 204 teachers randomly drawn using multi-stage stratified random sampling techniques from Nsukka education zone. The teachers responded and the questionnaires were duly retrieved from them immediately.

**Instrument for data collection**

Teachers' Information Technology Preparedness Questionnaire (TITPQ) and Teachers' Access to Information Technology Questionnaire (TAIT) adopted from Wong (2002) and Iding, Crosby and Speitel (2002) respectively was used to elicit information on teachers' access and preparedness to use ICT. (TITPQ) was used to elicit information on the teacher's preparedness to use ICT facilities in teaching, while the ICTAS was used to elicit information on the access to ICT facilities. Both questionnaires were divided into two sections. Section A comprised questions on demographic information of the respondents while section B was a 15 and 20-item instruments structured to elicit information on teachers access and preparedness to use ICT facilities in teaching and learning respectively. TITPQ was a four-point scale of VHE = Very High Extent, HE = High Extent, ME = Moderate Extent and LE = Low Extent, while TAIT was a four point scale of A Lot, Some Times, A Little and None.

One expert from Measurement and Evaluation and two from Educational Psychology all from Faculty of Education, University of Nigeria, Nsukka validated the instrument on the basis of its clarity, relevance and item suitability. Based on their suggestions and comments, corrections were effected and the final version of the instrument produced and trial tested using 50 teachers from Obollo-Afor Education Zone Enugu state, Nigeria. Two hundred and four (204) copies of the questionnaire were administered and duly retrieved from the teachers immediately. Mean and standard deviation were used to analyze the data collected.

The decision for accepting any item as representing teachers' access and preparedness to use ICT in teaching includes that the item with mean score of 2.5 and above on the 4-point scale indicates positive response and should therefore be accepted and otherwise indicates negative response and should be rejected.

**Results**

**Research Question 1**

What is the extent of teachers' access to the use of ICT facilities in teaching in Nsukka Education Zone of Enugu State, Nigeria?

**Table 1: Mean Response and standard deviation of teachers' access to ICT**

Item Statements	N	X	SD
Equipment and software necessary to use the computer for student-directed learning (search electronic encyclopedia and Internet, presentation production, etc.) is available to teachers.	204	2.4627	2.97540
Equipment and software necessary to use the computer for whole class instruction are available to teachers in my school.	204	2.5255	1.04015
My school have a well-equipped computer lab	204	2.3137	1.01205
The principal is supportive of computer use in classroom instruction.	204	2.7912	1.06337
I have access to a computer lab any time I want.	204	2.2941	1.06061
I have the equipment and software for whole class instruction.	204	2.3284	1.03390
I have the equipment and software for student-directed learning.	204	2.5235	.97417
I have the equipment and software for drill & practice.	204	2.2598	1.08558
I have the equipment and software to teach computer skills.	204	2.2598	1.10803
My access to other ICT (e.g., scanners, printers, CD burners, digital cameras) in the school is adequate for my needs.	204	2.6333	1.07670
I have adequate technical support for my use of ICT in the school.	204	2.2990	1.00433
My access to computers in the school is adequate for my needs.	204	2.1471	1.09091
My access to software use in the school is adequate for my need.	204	2.2990	.99447
Deficiency in professional development opportunities for gaining knowledge and skill.	204	2.5255	1.08193
Deficiency in support services in material development/technology usage.	204	2.3186	.95280
Lack of interest of teachers in technology usage.	204	2.2598	1.09461
Valid N (listwise)	204		

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Table 1 revealed that teachers' responses on item numbers 1,2,4,7, 10, and 14 representing 40% of the items had a mean above 2.5 which was the benchmark for acceptance set for teachers' access to the use of ICT in teaching. While their response on items 3, 5, 6, 8, 9, 11, 12, 13, and 15 representing 60% of the items had a mean below 2.5. This is an indication that teachers who do not have access to use ICT facilities in teaching are more than teachers who have access to ICT use in teaching within the study area.

**Research Question 2**

What is the extent of teachers' preparedness in the use of ICT facilities in teaching?

**Table 2: Mean and standard deviation of teachers' preparedness to use ICT in teaching**

Variable	N	X	SD
I know how to search the web using computer	204	1.4804	.50084
I can competently use computers for instructional delivery	204	2.4941	1.11495
I create web pages with text.	204	2.1520	1.13669
I can assess web site with information for preparing my teaching.	204	2.4745	1.03302
I can prepare a power point for instructional delivery	204	2.4563	1.19558
I can connect computer to power projector during instructional delivery.	204	2.3775	1.09620
I have used computers in teaching for a very long time.	204	2.6304	1.02234
I can use the internet in my teaching for collaborative projects with classes/individuals in other schools.	204	2.6127	.97356
I use computers often in my teaching.	204	2.1127	1.01323
I can Use the internet in my teaching for general reference.	204	2.1618	.98676
Use of instructional technologies seems to increase the quality of courses.	204	2.4696	1.06944
I am an effective computer user.	204	2.2647	1.10017
It is hard for me to explain the use of computer applications to my students.	203	2.4970	1.12161
I can use computers for simulation and applications methods while teaching.	204	2.6157	1.05165
I can use computers to demonstrate principles in the class room.	204	2.4843	1.10865

N= Number, SD = Standard Deviation

Table 2 indicates that items 2, 4, 5, 6, 7, 11, 13, 14, and 15 representing 54% of teachers' response on the items had a mean of 2.5 and above. Whereas their responses on items 1, 3, 8, 6, 9, 10, and 12 representing 46% of teachers' response on their preparedness to use ICT facilities in teaching had means below 2.5. This implies that most of the teachers within the study area are prepared to use ICT facilities in teaching.

**DISCUSSION**

Findings of the study in table 1 revealed that most teachers in Nsukka Education Zone do not have access to the use of ICT in teaching. This study is in agreement with the study conducted by Goshit (2006) on Nigeria's need for ICT which revealed that most schools, both private and government, do not offer ICT training programmes due to inaccessibility of ICT facilities in schools. In line with this, a study by Kaku (2005) on the use of internet by secondary school teachers in the rural areas of Delta State revealed that there is low availability of ICT in Nigerian schools. As a result, teachers do not have access to the use of ICT facilities in teaching in Nigeria. Though the present study revealed low access to teachers' use of ICT facilities in teaching but when compared to other findings, it showed a slight difference hence the percentage of teachers who have access to the use of ICT facilities in teaching is up to 40%. This could be as a result of recent provision of ICT lab in schools by school authorities within the zone.

Findings in table 2 revealed most teachers within the study area are prepared to use ICT facilities in teaching. This is revealed by teachers who are prepared to use ICT facilities scoring 56% in their response against 46% scored by teachers who are not prepared to use ICT facilities in teaching. This finding contradicts the studies by Studies by Anaekwe (2002) and Okeke and Edika (2011) revealed that secondary school teachers in Anambra State lack skills in utilization of ICT in teaching. Although, a slight difference

exist in the mean response of teachers who are not prepared to use ICT facilities in teaching and those who are prepared. This is in line with (Yusuf, 2005) assertion that effective use and integration of ICT in teaching and learning in Nigerian education will only be made possible when teachers are prepared to use it in the process. As a result, most teachers have learned to enhance their knowledge of computer use in the classroom during teaching.

### CONCLUSION

From the foregoing discussion, it is obvious that ICT integration in education is imperative and thus so many efforts have been made by both international and Nigerian government to integrate it into Nigerian education which could only be utilized effectively when teachers who are the sole drivers of education have access and are prepared to use them in teaching and learning. This notwithstanding, the findings of this study revealed that teachers in the zone are prepared to use ICT facilities in teaching but are lacking access to the use of it since there is low availability of ICT facilities in the education zone.

### RECOMMENDATIONS

Based on the findings, the following recommendations were made;

1. The federal government in the bid to integrate ICT into education should make provisions for ICT accessibility by providing ICT components to schools in Nigeria.
2. The government should organize in-service training such as seminars, workshop, and conferences for teachers in the field on the skills required to use ICT facilities in teaching.
3. Teachers on the other hand should find a way of improving their skills in ICT seeing the pace ICT use is going in the globe.

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