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Evaluation of Urban and Rural Teachers use of Information and Communication Technology in Teaching at Basic Education Level in South South Nigeria

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ABSTRACT
The integration of information and communication technology into educational system has dramatically changed the teaching and learning process. This study evaluate urban and rural teachers use of information and communication technology in teaching at basic education level in South South Nigeria .Mean and standard deviation was used to answer the research question while t-test statistics was used to test the stated hypothesis at 0.05 level of significance. The result obtained indicated that there was a significant difference between urban and rural teachers use of information and communication technology in the teaching at basic education level in South South Nigeria. It is recommended that government and other stakeholders (Parents Teachers Association, and Old Students Association) should provide more computers, laptops, computer aided instruction software, computer laboratory equipment to schools to enhance teachers lesson delivery at basic education in South South Nigeria.
Keywords: Evaluation, ICT and Teachers

INTRODUCTION
Evaluation enables teachers to ascertain the extent to which learning experiences are developed, organized and implemented and are actually producing or meeting the desired objectives. Evaluation includes any activities involving information – gathering and analysis from the simplest to the most sophisticated operations. Evaluation according to Kpolovie (2002) is the passing of decision or judgment on a person's trait in accordance with a test which validly and reliably measures the trait. It

involves consideration of the economy efficiency and effectiveness of the project to determine whether the objectives would be achieved.

Changes in educational technologies are rotational phenomena. Variation in technological resources leads to discovery of new teaching aids. In the 21st century, the education systems are forced to use new information and communication technologies (ICT) in providing knowledge for learners/students thereby identifying their abilities and skills. Teaching based on these levels of information and communication technologies has as impact on evaluation. ICT helps teachers in obtaining educational goals which develops learners' information and communication abilities necessary for professional activity in the future.

The need to operate in accordance with global orders and standard makes ICT an indispensable standard for the 21st century teaching and learning in Nigeria. It has shown that the modern world is an information society, driven by a complex set of technology devices and telecommunication networks which embraced the World Web platform. The urban and rural teachers as leaders, and moulder, do dictate the pace of learning and direction of change, evaluate learning and give verdicts about learners' abilities.

Technology involves the generation of knowledge that develop systems that solve problems and extended of human capabilities which change or alter people way of assessing, gathering, analyzing, presenting, transmitting and stimulating information. However, Information and Communication Technology (ICT) shows the most current issues in education that creates a powerful learning environment by transforming teaching - learning of students' self - directed and constructive knowledge (Volman & Van Eck, 2001). ICT could seen as a vital instrument that would improve new ways of teaching and learning which develop student's skills for cooperation, communication, problem solving for lifelong learning.

Technology integration into teaching involved cross-curricular courses rather than a separate course or topic itself. Technology tools support teachers' in achieving their educational objectives by searching skills and assessing information such as cooperation, communication and problem solving which are necessary for the preparation of children for the knowledge society. Nevertheless, innovative ICT use could facilitate student- centered learning where every classroom teacher could use learning technologies to improve their student learning in all subject, as it engage the thinking, decision making, problem solving and reasoning behaviours of students need to learn (Grabe & Grabe, 2007).

It has been shown that teachers could use ICT to promote students' intellectual qualities through divergent - order thinking, problem solving and improved communication skills in understanding the learning concept taught (Sutton, 2006). Teachers could use ICT in Basic Education to promote a supportive, interactive teaching - learning environment that create a broader learning community, by providing learning tools for students, that have special needs (Trinidad, Aldridge & Fraser, 2001; Hawkins, 2002). Computer - generated graphics are used to illustrate relationship of dynamic processes that cannot be illustrated by individual pictures (Franke, 1985). Teachers in Basic Education could use ICT to achieve and improve the creation of new and more effective curriculum that contributes to the teaching - learning of many subjects' areas. Some areas of the curriculum focused on ICT development which supports literacy and numeracy as evidences of positive impact that was reported in mathematics, modern foreign languages, sciences, history, geography, physical education and creative arts.

ICT implementation has improved the functioning of schools at multiple levels, such as new configuration of learning spaces and timetable created; innovative teaching methods incorporated; autonomous and active learning processes adopted while teachers'

traditional roles are expanded to include personal, group tutoring and guidance functions (Venezky & Davis, 2002).

Nigeria, and some other countries around the world, has over the years begun to improve its educational system by planning and introducing reforms based on Universal Basic Education (UBE). The aim was to give solid foundation to teachers and students for long life learning through the inculcation of learning-to-learn, self-awareness and be a citizenship (Federal Government of Nigeria (FGN), 2003). The focus was to increasing access to education, ensuring quality key goals of basic education in Nigeria which was in line with the Dakar Framework Action (2000).

ICT, therefore, make the school more efficient and productive by bring in varieties of tools to enhance and facilitate professional activities (Kirschner & Woperies, 2003). Haddad and Jurich (2002) summed it up thus:

> *The traditional model of learning emphasizes mastery of facts and concepts, while ICT diversifies the system of representation through the use of various stimuli (images, sounds and movement) in addressing the needs diverse type of learning (visual, psychomotor and affective). (p.33)*

Where the innovative planned of ICT was documented by the National Policy on Education, was gaining grounds globally in school system. Information and Communication Technology could not be regarded as the only solution to education problems, but in the world today they are essential tools for teaching and learning. For a teacher to be versed while using these tools there was need for visions, potentialities, and opportunities in application, training and time to experiment. Thus ICT should be regarded as a tool for teachers but not to be substituted for the

teacher. The educational systems in the globe are being persuaded to apply the information and communication technologies to teach students the expected needed knowledge - skills in their country.

Information and Communication Technology (ICT) was regarded as a phenomenon that was fast revolutionizing the world and making the world to become a global village (Abidoye & Ayelaagbe, 2001). It was essential for the teachers to take the issue of ICT with all seriousness so as to take education systems to enviable levels. Gone are those days when traditional classroom was gaining grounds, teachers in urban and rural schools in Nigeria are expected to be ICT compliant so as to move with knowledge explosion and technologically minded classroom interaction. ICT in the classroom came as a result of the search for better classroom and better teachers that would open their minds to positive changes.

In Nigeria, most of the technological facilities are situated in urban areas. This indicates that male and female teachers' attitude towards ICT would depend largely on the geographical location (rural and urban), based on the availability. Schools are being equipped with computers for teaching - learning, administrative purpose, connectivity are ongoing and students are enthusiastic in using computer when learning.

The need of ICT in South South Nigeria Secondary Schools cannot be overemphasized in this technological-driven age. Everybody requires ICT competence to survive and government find it necessary to train and re-train urban and rural teachers, to increase their knowledge of computers learning. Hence, research was needed to evaluate urban and rural teachers' use of Information and Communication Technology (ICT) in teaching at Basic Education Level in South South Nigeria.

According to Hafkin and Taggard (2008), a series of factors including the geographical location of technological facilities constrains female teachers' access to ICT, like Nigeria, most of the technological facilities are concentrated in urban areas. There was lack of adequate infrastructure such as telephone facilities, satellite facilities, electricity, and more especially communication centers in the rural areas. These therefore indicate that males and females teachers' attitudes towards ICT would depend on the geographical location (rural and urban).

The effective introduction of information and communication technology in urban and rural schools, largely depend on the availability and accessibility of ICT resources such as the hardware, software. Therefore, if technology cannot be accessed by teachers in many educational setting, then it would not be used. Since, ICT resources are located more in urban areas than rural areas. Since, schools in urban are equipped with computers for teaching - learning and administrative purposes than rural schools despite lack of some available equipment (Liverpool, 2002).

One of the policy objects was to promote the use of ICT in developing and sustaining local multimedia content for urban and rural schools. Preliminary survey conducted by Goldstein (1997) showed that despite three decades of government initiatives and academic research, the use of information and communication technology (ICT) in teaching and learning in urban and rural schools remains only partially understood by educationalist and inconsistently practiced in schools.

Statement of the Problem

The Draft Policy on ICT, by Ministry of Education agreed that the integration of ICT in education has the potential to influence human capacity such as access, create an environment that encourages creativity, critical thinking and decision making .To ensure that these expectations are achieved, the Ministry of Education has keyed into the

training of teachers by organizing workshops, conferences, seminars and symposia on the use of ICT in teaching at basic education level in south south Nigeria. The extent to which this is effectively being used is yet to be assessed. Therefore, one may ask whether teachers in South South Nigeria are using ICT or not in teaching at basic education level. The problem of the study put in question form is: What is the extent of urban and rural teachers on ICT use in teaching at basic education level in South South Nigeria?

Research Question

What is the difference between urban and rural teachers' on the extent of ICT use in teaching at basic education level in South South Nigeria?

Hypothesis

There is no significant difference between urban and rural teachers' on the extent of ICT use in teaching at basic education level in South South Nigeria.

METHODS AND PROCEDURES

The design employed for the study was expost-facto research design, were the variables of interest cannot be manipulated because the situation for the study already exists or has already taken place.

Population

The target population of the study cut across three states out of the six states in South South Nigeria which consists of 21,617 teachers in basic secondary schools in the three states (Delta 11,754, Edo 5663 and Rivers 4200).

Sample

The sample of this study consists of 1014 respondents representing 20% from three local Government areas each in a state which gives a total number of nine local Government areas of the three States and 25%

sampled of schools also from the three local Government areas each in a state which also gives a total numbers of nine local government Areas from the three states by means of stratified and multi-stage sampling techniques.

Research Instrument

The instrument used in this study was a questionnaire titled "Evaluation of Teachers use of Information and Communication Technology" in Teaching at Basic Education Level in South South Nigeria".

The instrument was made up of two sections. Section A consists of the bio data information of the respondents such as, age, sex, qualification, years of teaching experience and training, while section B initially consisted of 60 items which were subjected to factor analysis and 40 items were selected under the following sub- headings: Personal ICT Competence; ICT as a Mind tools; Social Aspects of ICT use in Education; Adopting ICT in Teaching; Cooperative ICT in Education and Embedding Learning about ICT in teaching are designed to find out the view of teachers who are the respondents. Five (5) points scale of very often (5 points), often (4 points), sometimes (3 points), very little 2 points) and Not at all (1 point) was used to score the responses in the instrument.

Method of Data Collection

The researcher visited the various schools that were used in the study and administered the instrument to the teachers who were the respondents, with the aid of three research assistants from the three States, where the study was conducted. The researcher ensured that the teachers, who were used as respondents, responded to the instrument independently. The completed instrument was collected on the spot by the researcher and the research assistants.

Method of Data Analysis

Mean and standard deviation were used to answer the research question. A mean of 3.00 was taken as the criterion level of acceptance / cut off mark / bench mark. That is a mean of 3.00 and above was taken as a high extent while a mean below 3.00 was taken as a low extent, while t-test statistics analysis was used to test the stated hypothesis at 0.05 level of significance.

RESULTS

Research Question

What is the difference between urban and rural teachers' on the extent of ICT use in teaching at basic education level South South Nigeria?

Table 1: Mean and Standard deviation of Urban and Rural Teachers on the extent of ICT use in teaching at basic education level

		Urban N = 558			Rural N = 456		
S/N	Personal ICT Competencies	$\bar{x}$	SD	Decision	$\bar{x}$	SD	Decision
1	I can use ICT tool resource for my classes	2.99	0.83	Low	2.76	0.71	Low
2	I can create effective students resources for my classes	2.75	1.01	Low	2.56	1.06	Low
3	I can access ICT resources from a number of education specific sources outside my school.	3.22	0.72	High	3.27	0.77	High
4	I ensure that ICT resources in my classroom are relevant to learning activities.	3.20	0.87	High	3.16	0.82	High
5	I share ICT resources that I have created with other teachers within my school.	2.87	1.29	Low	2.74	1.46	Low
6	I support other teachers within my schools to ensure relevant of ICT to learning activities.	2.97	0.88	Low	2.88	0.92	Low
7	I ensure that all ICT resources in	2.95	0.80	Low	2.93	0.77	Low

	my school are easily accessible by staff.						
8	I actively promote the use of ICT resources within my schools for teaching - learning.	3.14	0.83	High	2.99	0.82	Low
9	I promote the use of ICT resources beyond my school.	3.30	0.62	High	3.50	0.51	High
	Total Grand Mean	3.04			2.98		
	ICT as a Mind Tool						
10	I encourage students to use ICT in clarifying thoughts for the purposes of evaluation.	3.32	0.53	High	3.33	0.47	High
11	I support students to use ICT to demonstrate their understanding of concepts.	3.60	0.68	High	3.74	0.68	High
12	I encourage students to use ICT to process data information for problem solving.	2.91	0.67	Low	2.74	0.63	Low
13	I support students to use ICT to improve digital literacy skills.	3.16	0.94	High	3.23	0.96	High
14	Use of ICT to map a student's proffered learning style in identifying areas for improvement.	2.85	0.70	Low	2.94	0.68	Low
15	Use ICT as instructional software to consolidate learning.	2.85	0.70	Low	3.20	0.40	High
16	Use ICT as the advance features of search engines to research a topic.	3.06	1.08	High	2.66	1.38	Low
17	Use of graphic organizers to visualize teachers / students thinking processes.	3.46	0.77	High	3.93	0.36	High
18	Use ICT for instant messaging in communicating to the school.	3.16	1.06	High	2.80	1.26	Low
	Total Grand Mean	3.15			3.17		
	Social Aspect of ICT Use in Education						
19	Use ICT to give information to	2.82	0.91	Low	2.43	1.50	Low

	other teachers about students' performance to support transitions between classes.						
20	Use ICT to access students' records for the purpose of reflecting on their previous year's performance.	2.96	0.92	Low	1.41	0.91	Low
21	Use ICT for reporting to parents.	3.08	0.85	High	2.35	0.73	Low
22	Use ICT to capture evidence of student performance.	3.19	0.94	High	2.14	0.41	Low
23	Use ICT for student task, such as online test / assignment.	3.13	0.84	High	2.35	0.64	Low
24	Use ICT to analyze assessment data finding to inform curriculum planning.	3.37	0.84	High	2.67	0.57	Low
25	Use ICT to give feedback to students on their performance.	2.91	0.72	Low	2.40	0.74	Low
	Total Grand Mean	3.07			2.25		
	Adopting ICT in Teaching						
26	Use of ICT influences my classroom combinations of students grouping for learning such as small groups.	3.28	0.84	High	2.03	0.90	Low
27	Use of ICT influences my classroom organization by providing a range of different activities within a lesson.	3.11	0.66	High	3.02	0.59	High
28	Use of ICT influences my classroom organization by catering for different learning styles.	3.32	0.61	High	2.86	0.68	Low
29	Use of ICT influences my classroom organization by providing personalized learning opportunities.	2.85	1.16	Low	2.70	1.17	Low
	Total Grand Mean	3.14			2.65		
	Cooperative ICT in Education						

30	I undertake ICT professional learning to gain ICT skills that can be applied in my classroom in practical ways.	3.52	0.75	High	3.68	0.68	High
31	I ensure I keep up to date on new technologies for teaching-learning.	3.08	0.96	High	3.07	0.97	High
32	I undertake ICT professional learning that to strengthen pedagogy practice within schools.	2.97	0.74	Low	2.98	0.71	Low
33	I undertake ICT professional learning to gain skills that enable integration of ICT into planned learning activities.	2.82	1.13	Low	2.69	1.19	Low
	Total Grand Mean	3.10			3.11		
	Embedding Learning about ICT						
34	I provide a safe ICT environment.	3.32	0.90	High	3.44	0.72	High
35	I initiate discussion with teacher's on the use of ICT in schools.	3.23	0.85	High	3.11	0.86	High
36	I support students' access to ICT anytime/anywhere safe for learning.	2.91	0.76	Low	2.94	0.78	Low
37	I promote the importance of safe practice in the use of ICT to my schools community.	3.00	0.95	High	2.98	0.94	Low
38	I use ICT to support students to improve their ability in processing large quantities.	2.97	0.77	Low	2.98	0.79	Low
39	Use ICT to ensure that student manage their files to secure their content for efficient retrieval	3.19	0.54	High	3.18	0.56	High
40	I work to ensure that all teachers / students in my school are aware of the policies required for safe use of ICT.	2.87	1.27	Low	2.89	1.24	Low
	Total Grand Mean	3.07			3.07		

Table 1, revealed the difference between urban and rural teachers on the extent of ICT use in teaching at basic education level, with a total grand mean of 3.10 for urban and 2.87 for rural teachers. The Table indicated that urban teachers agreed to items 3, 4, 8 and 9 with a mean range of 3.14-3.30 and a grand mean of 3.04 on personal ICT competencies as high extent which were within the criterion level of 3.00 and above as high extent, and rural teachers agreed to items 3 and 4 with a mean range of 3.16 - 3.50 on personal ICT competencies. This showed that sometimes they: can access ICT sources from a number of education specific sources outside school; ensure that ICT resources in classroom are relevant to learning activities; actively promote the use of ICT resources within schools for teaching-learning; and promote the use of ICT resources beyond school and items 1, 2, 5, 6, and 8 with a mean range of 2.75-2. 99 indicated a low extent for both urban and rural teachers on personal ICT competencies.

In ICT as mind tools, urban teachers agreed to items 10, 11, 13, 16, 17, and 18 with a mean range of 3.06-3.60 and a grand mean of 3.15 and rural teachers also agreed to items 10, 13, 15, and 17 with a mean range of 3.20-3.93 and a grand mean of 3.17 which were above the criterion level of 3.00 and above as high extent. This confirmed that they sometimes: encouraged students to use ICT in clarifying thoughts for the purposes of evaluation; support students to use ICT to demonstrate their understanding of concepts; support students to use ICT to improve digital literacy skills; use ICT as the advance features of search engines to research a topic; use of graphic organizers to visualize teachers/students thinking processes; and use ICT for instant messaging in communicating to the school.

In social aspect of ICT use in educating, the urban teachers agreed to items 21, 22, 23 and 24 with a mean range of 3.08-3.37 and a grand mean of 3.07 as high extent. This showed that sometimes they: use ICT for reporting to parents; use ICT to capture evidence of student

performance; use ICT for students task, such as online test / assignment; and use ICT to analyze assessment data finding to inform curriculum planning. While rural teachers with a mean range of 1.41- 2.65 and a grand mean 2.67 in items 19,20,21,22,23,24 and 25 indicated a low extent in social aspect of ICT use in education.

In adopting ICT in teaching, urban teachers agreed to items 26, 27, and 28 with a mean ranged of 3.11-3.28 and grand mean of 3.14 that met the criterion level of 3.00 and above as high extent. That is sometimes they: use of ICT influences classroom combinations of students grouping for learning such as such as individuals; use of ICT influences classroom organization by providing a range of different activities within a lesson; and use of ICT influences classroom organization by catering for different learning, while rural teachers agreed to item 27 with a mean of 3.02 and item 29 with a means of 2. 85 in adopting ICT in teaching indicated that urban teachers had a low extent. In items 26, 28, and 29 with a mean range of 2.03 -2.86 showed that rural teachers had a low extent.

In cooperative ICT in education, the result indicated that both urban and rural teachers agreed to items 30 and 31 with a mean range of 3.07-3.68 and a grand mean of 3.10 for urban teachers and 3.11 for rural teachers. This implies that they sometimes: undertake ICT professional learning to gain ICT skills and understanding that can be applied in classroom in practical ways; and ensure to keep up to date on new technologies for teaching-learning and items 32 and 33 with a mean range of 2.69-2.98 revealed a low extent.

In embedding learning about ICT in education, urban teachers agreed to items 34, 35, 37 and 39 with a mean range of 3.00- 3.32 and a grand mean of 3.07. While rural teachers agreed to items 34, 35, and 39 with a mean range of 3.11-3.44 and a grand mean of 3.07. That is they sometimes: provide a safe ICT environment; initiate discussion with teachers on

the use of ICT in schools; promote the importance of safe and practice in the use of ICT to schools community ; and use ICT to ensure that students manage their files to secure their content for efficient retrieved. While urban teachers with a mean range of 2.87-2.97 in items 36, 38 and 40 had low extent and rural teacher with a mean range of 2.89-2.98 in items 37, 38 and 40 also had low extent in embedding learning about ICT in other content domain in teachers' education.

Hypothesis 2

There is no significant difference between urban and rural teachers use of ICT in teaching at basic education level in South South Nigeria.

Table 2: T-test analysis of Urban and Rural Teachers use of ICT in teaching at basic education level

Respondents	N	$\bar{x}$	SD	DF	t-cal	t-Crit	Level of sign	Decision
Urban Teachers	558	58.68	6.98					
Rural Teachers	456	57.77	6.57	1012	2.100	1.96	0.05	Significant (Rejected)

The results in Table 4.9 revealed that the t-calculated value of 2.100 was greater than the t-critical value of 1.96. Therefore, the null hypothesis was rejected. This implied that there was significant difference between urban and rural teachers use of ICT in teaching at basic education level in South South Nigeria.

DISCUSSION

The finding in research question , Table 4.2 showed the difference between urban and rural teachers on the extent of ICT use in teaching at basic education level with a total grand mean of 3.10 for urban and 2.87 for rural. This also indicated the grand means for items 1-9 on personal ICT competencies as 3.04 and 2.98; items 10 -18 on ICT as a mind tools were 3.15 and 3.17; items 19 -25 on social aspect of ICT used in education were 3.07 and 2.25; items 26-29 on adopting ICT in teaching were 3.14

and 2.65; items 30 -33 on cooperative ICT in education were 3.10 and 3.11 and items 34-40 on embedding learning about ICT were 3.07 for urban and rural teachers. This implies that urban teachers have high extent on personal ICT competencies, social aspect of ICT use in education and adopting ICT in teaching than the rural teachers at basic education level.

The result in hypothesis revealed that there was significant difference between urban and rural teachers use of ICT in teaching at basic education level. This finding supports the view of Liverpool (2002) which indicated that the ICT resources tend to be more available in urban schools than in rural schools .That is teachers in urban schools are increasingly being equipped with computer for teaching, learning and administrative purposes than teachers in rural schools.

CONCLUSION

The study showed that urban teachers had high extent of ICT use in teaching at basic education level in South South Nigeria when compared to the rural teachers, in terms of ICT competencies, social aspect of ICT use in education and adopting ICT in teaching. However, it is recommended that government and other stakeholders (Parents Teachers Association, and Old Students Association) should provide more computers, laptops, computer aided instruction software, computer laboratory equipment to schools to enhance teachers lesson delivery at basic education in South South Nigeria.

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