



Assessment of Information and Communication Technology Tools for Instructional Delivery in Secondary Schools in Port Harcourt Metropolis

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ABSTRACT

The study assessed information and communication technology tools for Instructional Delivery in Junior Secondary Schools in Port Harcourt Metropolis of Rivers State. Four research questions and three null hypotheses guided the study. A descriptive survey research design was adopted for the study. The population comprised of 845 (229 males and 616 females) teachers. A simple random sampling technique was used to select a sample size of 423 teachers from thirty-four junior secondary schools. A self-structured questionnaire was used for data collection. The reliability of the instrument was determined through test-retest technique. The responses were collated and analysed using Pearson Product Moment Correlation Coefficient which yielded a reliability index of 0.97. Mean and standard deviation were used to analyze data gathered while z-test was used to test the null hypotheses at 0.05 level of significance. Findings of the study revealed that projector, camera, CD ROM computer among others are available in most public junior secondary school. It was revealed that most teachers were competent in the use of ICT tools. The study also revealed that poor power supply, insecurity, unqualified ICT maintenance personnel and lack of skilled manpower hinders the integration of ICT tools. Based on the findings, the study recommended amongst others that government at all levels should provide constant power supply, quality security in junior secondary schools. Finally, schools should implement ICT seminar for proper integration.

Keywords: Assessment, ICT Tools, Instructional Delivery, Secondary Schools

INTRODUCTION

Education is the major input to achieving national development and individual empowerment. National Policy on Education (2013) stipulates the need for functional practical education for acquisition of appropriate skills and development of individual competence for societal growth.

Information and Communication Technology in learning refers to a whole range of facilities involved in information processing and electronic communication to be handled with skills and expertise for effective achievement and realization of its potentials in education (Objekunle, 2011). According to Stanley (2014), it is an innovative instrumental tool that enables the educators to modify the teaching and learning process on the basis of increasing students' interest in knowledge. Ubadi (2011) explained that Information and Communication Technology is considered very crucial for the achievement of various educational objectives in terms of expanding the citizenry access to education at all levels and improving the quality of teaching and learning process. Information and Communication Technology (ICT) entails the integration of computers and other electronic devices, tools and equipment for effective processing and delivery of information. It is an innovative tool that enables public junior secondary school teachers

facilitates teaching and learning. As a basis for the delivery of education, training of pupils and students are expected to complete the first nine years before proceeding on a career part in the next three years of secondary education.

The need for information and communication technology gadgets in secondary school classroom delivery is inevitable as it is globally needed to improve students' knowledge and to solve societal problem. Laudon and Laudon (2006) stressing the need for availability of ICT in education said that ICT is important because it is a very fast method for communication, with messages arising anywhere in the world within seconds. Thelen (2002) in appraising the current role which ICT plays in the life of students concluded that Information and Communication Technology enhances learning amongst students as it provides means of sourcing for materials for class work and research proposals. Nwanna (2008) pointing out ICT tools needed for effective teaching and learning asserts that ICT resources such as computer, scanner, printer, intranet, internet, videophone systems, teleconferencing devices, wireless application protocols (WAP), radio and microwaves, television, satellites and multimedia projector, among others should be made accessible for instructional delivery in schools. Ugwuanyi and Eze (2008) stated that many institutions in Nigeria now recognize the integration of e-learning technologies as one of the essential alternative instructional delivery method for education.

Ebifung (2008) listed some essential factors for successful use of Information and Communication Technology to include knowledge of ICT services, training on a continual basis, availability of equipment and technical assistance, supportive administration, collaboration with other teachers, collaboration with other students and advanced planning. Agboeze, Ugwoke and Onu (2012) stated that many institutions utilize ICT tools such as digital cameras, monitor, and video players, among others as e-learning complement for facilitating teaching.

Williams (2009) emphasized that the integration of ICT tools in school curriculum depends highly on the teachers who will utilize them to teach the students. This requires that teachers should have the knowledge and ability to incorporate Information and Communication Technology into teaching and learning process. Davis (1989) noted that application of Information and Communication Technology to lesson delivery makes instructions more effective and productive. Adesun (2014) stressed the need for teachers who are identified as the agents in the curriculum implementation process to have good knowledge of the use of ICT gadgets. However, Adesun and Maduekwe (2008) in their study revealed that most Nigerian teachers possess high level skills in the use of ICT, which include ability to use a computer operating system, basic hardware and the good understanding of basic terminology and concepts. Similarly, Onyenike (2010) reported in a study that about 80.7% of teachers have personal computers and have been introduced to some ICT tools through training as teachers. Anderson and Glen (2008) revealed that most teachers who are trained in the use of ICTs utilize e-teaching devices to facilitate learning delivery in secondary schools.

Many factors such as absence of well trained teacher librarian who should organise and render services to users bedevil the use of Information and Communication Technology in secondary schools. Daramola (2004) argued that one of the factors that hinder ICT usage in schools is lack of skilled manpower. Similarly, Bingimlas (2009) listed lack of provision for ICT training, inadequate ICT skills among teachers and limited time as factors against the use of ICT tools in teaching. Slone (2009) asserts that cost of computer, fund and inadequate power supply restrain ICT integration in junior secondary schools. Without the qualified ICT teachers to handle the affairs of the ICT gadgets in schools, there is bound to be set back in the process of integrating ICT tools for teaching and learning.

Khan, Hasan and Clement (2012) affirmed that lack of ICT supported infrastructure, inadequate funds for e-teaching facilities, poor government vision, lack of institutional plan and political influences hamper the utilization of ICT in lesson delivery. Hence, assistance from government, social clubs and old students association could be of great help towards achieving a reasonable fund to equip the schools with ICT tools. Ezeugbor (2008) posited that inadequate funding, insecurity and unskilled personnel for ICT gadgets maintain hinders lecturers' ICT usage for class delivery. Okeke (2009) also asserted that the

major problems associated with the use of ICT include installation, repairs, and changes in the role of school librarian, pornography and misinformation.

Statement of the Problem

Integration of Information and Communication Technology began in the 19th century in some developed nations. However, in the 21st century different sectors of the economy such as medicine, banking pharmacy, agriculture and architecture fully embraced the use of ICTs and the educator sector cannot be an exception, especially in the Public Junior Secondary Schools.

Based on the fore-going the Federal Government of Nigeria took pragmatic steps which were unequivocally stated thus, that to advance knowledge and skills necessary for effective functioning in a knowledge driven world, it will provide adequate infrastructure and develop capacity for effective utilization of Information Technology (IT) to enhance the delivery of Basic Education in Nigeria. It is perceived that Information and Communication Technology Tools are made available in Public Junior Secondary Schools. However, the integration of these devices in teaching process is not adequately inclusive thereby affecting classroom delivery. Similarly, various studies conducted in Nigeria have also shown clearly that low academic achievement among junior secondary school students was due to inadequate availability and use of ICT tools for teaching and learning, inadequate utilization of Information and Communication Technology tools in teaching and learning and teachers' background in the use ICT tools in Junior Secondary Schools (Aderinoye, 2012; & Afe, 2013). Based on this, the study assessed ICT tools for Instructional Delivery in Public Junior Secondary Schools in Port Harcourt Metropolis of Rivers State.

Purpose of the Study

The purpose of the study was to assess Information Communication Technology tools for instructional delivery in public Junior Secondary Schools in Port Harcourt Metropolis. Objectively, the study sought to:

1. Determine the extent of availability of Information and Communication Technology tools for instructional delivery in Junior Secondary Schools in Port Harcourt Metropolis.
2. Ascertain the extent of utilization of Information and Communication Technology tools for instructional delivery in Junior Schools in Port Harcourt Metropolis.
3. Ascertain the extent of teachers' competence in the use of ICT tools for instructional delivery in Junior Secondary Schools in Port Harcourt Metropolis.
4. Identify the extent barriers influence Information and Communication Technology integration for instructional delivery in Public Junior Secondary Schools in Port Harcourt Metropolis.

Research Questions

The following research questions guided the study.

1. To what extent are Information and Communication Technology tools available for instructional delivery in Public Junior Secondary Schools in Port Harcourt Metropolis?
2. To what extent are Information Communication Technology tools utilized for instructional delivery in Public Junior Secondary Schools in Port Harcourt Metropolis?
3. To what extent are teachers competent in the use of Information Communication Technology tools for instructional delivery in Public Junior Secondary School in Port Harcourt Metropolis?
4. To what extent do barriers influence Information Communication Technology integration for instructional delivery in Public Junior Secondary Schools in Port Harcourt Metropolis?

Hypotheses

The following null hypotheses which were tested at 0.05 level of significance guided the study.

- Ho₁:** There is no significant difference in the mean response of male and female teachers on extent of availability of Information and Communication Technology tools for instructional delivery in public junior secondary schools in Port Harcourt metropolis.
- Ho₂:** There is no significant difference in the mean ratings of male and female teachers on the extent of ICTs' utilization for instructional delivery in public junior secondary schools in Port Harcourt Metropolis.

Ho₃: There is no significant difference in the mean ratings of male and female teachers on extent of teachers' competence in the use of ICTs for instructional delivery in public junior secondary schools in Port Harcourt Metropolis.

METHODOLOGY

Rivers State evidently informed by the high value placed on education by the people and the number of public secondary schools established in the area. This study adopted a descriptive survey research design with the use of self-structured questionnaire designed in a 4-point rating scale of high extent which was validated by two experts in measurement and evaluation. The population of the study was eight hundred and forty five (845) teachers from thirty-four (34) public junior secondary schools in Port Harcourt (Post Primary Schools Board, 2018). The sample size of 423 (male 147 and female 276) teachers was drawn using a random sampling technique. Four research questions and three hypotheses were formulated to guide the study. The hypotheses were tested at 0.05 level of significant. Data collected were analyzed using mean and standard deviation with a benchmark of mean of 2.50 and above.

RESULTS

Research Question 1: *To what extent are Information and Communication Technology tools available for instructional delivery in Public Junior Secondary Schools in Port Harcourt Metropolis of Rivers State?*

Table 1: Mean and Standard Deviation of Male and Female Teachers on extent ICT tools are Available for Instructional Delivery in Junior Secondary Schools

S/N	Statements	Male = 147			Female = 276		
		\bar{X}_1	SD	RMK	\bar{X}_2	SD	RMK
1.	Computer	3.58	0.43	VHE	3.61	0.50	VHE
2.	CD Rom/Radio	3.58	0.43	VHE	3.61	0.50	VHE
3.	CD Writers/GSM Phones	3.55	0.98	VHE	3.50	0.49	VHE
4.	Scanner/Hand held Machines	3.47	0.42	VHE	3.60	0.49	VHE
5.	L.C.D. Monitor/Modes	3.47	0.42	VHE	3.60	0.49	VHE
6.	Television/Photos/Fax	3.60	0.42	VHE	3.63	0.52	VHE
7.	Scan Digital Cameras	3.55	0.49	VHE	3.60	0.52	VHE
8.	Video Players	3.56	0.51	VHE	3.59	0.49	VHE
9.	Multimedia	1.81	0.57	LE	2.39	0.65	LE
10.	Projector	3.67	0.47	VHE	3.53	0.50	VHE
11.	Smart boards	2.47	0.49	LE	2.43	0.43	LE
Grand \bar{x} /SD		3.58	0.51	VHE	3.59	0.50	VHE

Table 1 shows the mean responses of teachers on extent ICT tools are available for instructional delivery in public junior secondary schools in Port Harcourt Metropolis. The respondents revealed that computers (3.58 & 3.61), CD Rom/Radio (3.58 & 3.61), CD Writers/GSM phones (3.55 & 3.50), scanner/hand held machines (3.47 & 3.60), L.C.D. monitor/modes (3.47 & 3.60), television/photos/fax (3.60 & 3.63), scan digital Cameras (3.55 & 3.60), video players (3.56 & 3.59) and projector (3.67 & 3.50) are ICT tools available in Junior secondary schools in Port Harcourt Metropolis. The study also revealed that multimedia (1.81 & 2.39) and smart boards (2.47 & 2.43) are rarely available in junior secondary schools in Port Harcourt Metropolis of Rivers State.

Research Question 2: *To what extent are ICT tools utilized for instructional delivery in Public Junior Secondary Schools in Port Harcourt Metropolis of Rivers State?*

Table 2: Mean and Standard deviation of Male and Female Teachers on extent of ICTs utilization for instructional delivery in Public Junior Secondary Schools

S/N	Statements	Male = 147			Female=276		
		\bar{X}_1	SD	RMK	\bar{X}_2	SD	RMK
1.	Computers are utilized for instructional delivery	3.46	0.52	VHE	3.62	0.54	VHE
2.	Multimedia are often used by teachers in classroom delivery	2.41	1.02	LE	2.22	1.02	LE
3.	CD Rom and Radio are frequently used for instructional delivery in classes	3.42	0.48	VHE	3.58	0.67	VHE
4.	CD Writers and GSM phones are adequately used for instructional delivery	3.52	0.49	VHE	3.58	0.49	VHE
5.	Scanner and hand held machine are used during practices.	3.51	0.49	VHE	3.60	0.49	VHE
6.	L.C.D monitors and modes are used regularly for instructional delivery.	3.54	0.54	VHE	3.54	0.52	VHE
7.	Scan digital camera are regularly used	3.54	0.67	VHE	3.60	0.54	VHE
8.	Video players are ICT tools mostly utilized in classes	3.52	0.54	VHE	3.58	0.49	VHE
Grand \bar{x} /SD		3.38	0.66	VHE	3.58	0.59	VHE

Table 2 shows the mean response of teachers on extent ICT tools are utilized for instructional delivery in public junior secondary schools in Port Harcourt Metropolis. The respondents revealed that computers are regularly used for instructional delivery (3.46 & 3.62), CD Rom and Radio are frequently used for instructional delivery in classes (3.42 & 3.58), CD Writers and GSM phones are adequately used for instructional delivery (3.42& 3.58) Scanner and hand held machine are used during practices (3.47 & 3.60), L.C.D monitors and modes are used regularly for instructional delivery (3.54 & 3.54), scan digital camera are not used regularly due to inadequate in numbers (3.54 & 3.60) and video players are the most frequently used ICT tool in classroom and practical delivery in junior secondary in Port Harcourt Metropolis of Rivers State. On the other hand, it was found that multimedia is rarely used by teachers in classroom delivery due to its inadequacy (2.41 & 2.22).

Research Question 3: *To what extent are teachers competent in the use of ICT tools for instructional delivery in Public Junior Secondary School in Port Harcourt Metropolis of Rivers State?*

Table 3: Mean and Standard Deviation of respondents on extent of teachers' competence in the use of ICT tools for instructional delivery

S/N	Statements	Male = 147			Female=276		
		\bar{X}_1	SD	RMK	\bar{X}_2	SD	RMK
1.	Teachers have the ability to connect basic computer components	3.58	0.51	VHE	3.52	0.55	VHE
2.	Teachers have the ability to boot and shut down computers	3.45	0.53	VHE	3.49	0.51	VHE
3.	Teachers have the ability to use CD Writers efficiently	3.55	0.50	VHE	3.59	0.46	VHE
4.	Teachers have the ability to effectively use LCD monitors for instructional delivery	3.33	0.54	VHE	3.55	0.50	VHE
5.	Teachers have the ability to demonstrate correct usage of scan digital camera	3.50	0.50	VHE	3.55	0.50	VHE
6.	Teachers have the ability to demonstrate correct usage of hand held machine	3.46	0.51	VHE	3.47	0.56	VHE
7.	Teachers are competent in the correct use of video player	3.57	0.50	VHE	3.58	0.49	VHE
8.	Teachers have the ability in use of CD Rom/Radio	3.55	0.55	VHE	3.57	0.52	VHE
Grand \bar{X} and SD		3.50	0.52	VHE	3.54	0.51	VHE

Table 3 shows the mean responses of male and female teachers on the extent teachers are competent in the use of ICT tools for instructional delivery in Public Junior Secondary School in Port Harcourt Metropolis of Rivers State. The respondents revealed that teachers have the ability to connect basic computer components (3.58 & 3.52), teachers have the ability to boot and shut down computers (3.45 & 3.49), teachers have the ability to use CD Writers efficiently (3.55 & 3.59), teachers have the ability to effectively use LCD monitors for instructional delivery (3.33 & 3.55), teachers have the ability to demonstrate correct usage of scan digital camera (3.50 & 3.55), teachers have the ability to demonstrate correct usage of hand held machine (3.46 & 3.47), teachers have the ability to demonstrate correct usage of video player (3.57 & 3.58) and finally, teachers have the ability to demonstrate correct usage of CD Rom/Radio (3.55 & 3.57)

Research Question 4: *To what extent do barriers influence ICTs' integration for instructional delivery in Public Junior Secondary Schools in Port Harcourt Metropolis of Rivers State?*

Table 4: Mean and Standard Deviation of Male and Female Teachers on extent barriers influence ICTs' integration for instructional delivery in Public Junior Secondary Schools in Port Harcourt Metropolis

S/N	Statements	Male = 147			Female=176		
		\bar{X}_1	SD	RMK	\bar{X}_2	SD	RMK
1.	Lack of skilled manpower to handle the affairs of the ICT gadgets.	3.52	0.40	VHE	3.67	0.55	VHE
2.	Untrained school librarian without adequate skill cannot render services to users.	3.51	0.41	VHE	3.66	0.56	VHE
3.	Lack of training culture in internet skill for ICT integration.	3.48	0.40	VHE	3.63	0.55	VHE
4.	Problem of inadequate fund for training of specialist constitute barriers to ICT integration	3.48	0.40	VHE	3.63	0.55	VHE
5.	Unqualified personnel to handle the affairs of ICT gadgets hinders ICT integration in classes	3.46	0.44	VHE	3.61	0.59	VHE
6.	Inadequate security in and around the school environment	3.23	0.76	VHE	3.33	1.12	VHE
7.	Poor power supply in the school environment.	3.47	0.42	VHE	3.62	0.57	VHE
8.	Half baked personnel for effective maintenance of the computer	3.50	0.42	VHE	3.65	0.57	VHE
9.	Expensive nature of computer devices and parts.	3.46	0.44	VHE	3.61	0.59	VHE
Grand \bar{X} and SD		3.49	0.50	VHE	3.64	0.59	VHE

Table 4 shows the mean responses of male and female teachers on extent barriers influence ICTs' integration for instructional delivery in Public Junior Secondary Schools in Port Harcourt Metropolis. The respondents revealed that lack of skilled manpower to handle the affairs of the ICT gadgets (3.52 & 3.67), inadequate skill of librarians to render services to users. (3.51 & 3.66), lack of training culture in internet skill is a constraint to ICT integration (3.48 & 3.63), inadequate fund for the training of specialist (3.48 & 3.63), unqualified personnel to handle the affairs of the ICT gadgets (3.46 & 3.61), Inadequate security in and around the school environment (3.23 & 3.33), poor power supply in the school environment (3.47 & 3.62), half baked personnel for effective maintenance of computer (3.50 & 3.65) and finally, expensive nature of computer devices and parts (3.55 & 3.57) are some barriers influencing ICTs' integration for instructional delivery in Public Junior Secondary Schools in Port Harcourt Metropolis of Rivers State.

Hypotheses Testing

Hypothesis 1: There is no significant difference in the mean response of male and female teachers on extent of availability of ICT tools for instructional delivery in public junior secondary schools in Port Harcourt metropolis.

Table 5: Z-test Analysis on extent of availability of ICT tools for instructional Delivery in public junior secondary schools

Respondents	N	\bar{X}	SD	Df	Z-cal	Z-crit	α	Decision
Male Teachers	147	3.58	0.51	421	0.48	1.96	0.05	Fail to reject
Female Teachers	276	3.59	0.50					

Data on table 5 shows summarises of scores, mean, standard deviation and Z-test analysis of the mean ratings of male and female teachers on extent of availability of ICT tools for instructional delivery in public junior secondary schools in Port Harcourt Metropolis. The calculated Z-value stood at 0.46 while the Z-critical value was 1.96 at a degree of freedom of 421 at 0.05 level of significance. The calculated Z-value of 0.46 was less than the Z-critical value of 1.96. Hence, the null hypothesis which stated that there was no significant difference in the mean rating of male and female teachers on extent of availability of ICT tools for instructional delivery in public junior secondary schools in Port Harcourt Metropolis of Rivers State was upheld.

Hypothesis 2: There is no significant difference in the mean response of male and female teachers on the extent of ICT Utilization for instructional delivery in public junior secondary schools in Port Harcourt Metropolis of Rivers State.

Table 6: Z-test Analysis of on Extent of ICT Utilization for Instructional Delivery in Public Junior Secondary Schools

Respondents	N	\bar{X}	SD	Df	Z-cal	Z-crit	α	Decision
Male Teachers	147	3.38	0.66	421	1.53	1.96	0.05	Fail to reject
Female Teachers	276	3.58	0.59					

Data on Table 6 shows summaries of scores, mean, standard deviation and Z-test analysis of the mean rating of male and female teachers on the extent of ICT Utilization for instructional delivery in public junior secondary schools in Port Harcourt Metropolis of Rivers State. The calculated Z-value of 1.53 was less than the critical value of Z which stood at 1.96. Hence, the null hypothesis was upheld which stated that there is no significant difference in the mean ratings of male and female teachers on the extent of ICT Utilization for instructional delivery in public junior secondary schools in Port Harcourt Metropolis of Rivers State.

Hypothesis 3: There is no significant difference in the mean response of male and female teachers on extent of teachers' competence in the use of ICT tools for instructional delivery in public junior secondary schools.

Table 7: Z-test Analysis on extent of teachers' competence in the use of ICT tools for instructional delivery in public junior secondary schools

Respondents	N	\bar{X}	SD	Df	Z-cal	Z-crit	α	Decision
Male Teachers	147	3.50	0.52	421	0.57	1.96	0.05	Fail to reject
Female Teachers	276	3.54	0.51					

Data on Table 7 shows summaries of scores, mean, standard deviations and Z-test analysis of the mean rating of male and female teachers on extent of teachers' competence in the use of ICTs for instructional delivery in public junior secondary schools in Port Harcourt Metropolis of Rivers State. The calculated Z-value stood at 0.57, while the Z-critical value stood at 1.96 using 421 degree of freedom at 0.05 level of significance. The calculated Z-value of 0.57 was less than the Z-critical value which stood at 1.96. Hence, the null hypothesis was upheld which stated that there is no significant difference in the mean ratings of male and female teachers on extent of teachers' competence in the use of ICTs for instructional delivery in public junior secondary schools in Port Harcourt Metropolis of Rivers State.

DISCUSSION OF FINDINGS

The result in Table 1 revealed that information and communication technology tools such as computers, CD Rom/ Radio, CD writers and scanner were available for instructional delivery in public junior secondary schools in Port Harcourt Metropolis of Rivers State. The findings aligned with the assertion of Nwanna (2008) who listed computer, scanner, printer, intranet, videophone systems and teleconferencing devices as ICT resources available for instructional delivery method in schools. The table also revealed that LCD, monitor/modes, scan digital cameras, projector and video players are some ICT tools available in public junior secondary schools in Port Harcourt Metropolis of Rivers State for instructional delivery. These findings corroborate with Agboeze, Ugwoke and Onu (2012) who opined that many institutions utilizes ICT devices for facilitating teaching and tutorials. Also supporting these findings, the result of the hypothesis revealed no significant difference in the mean response of the teachers on the availability of ICT tools for instructional delivery in public junior secondary schools in Port Harcourt Metropolis of Rivers State.

The result in Table 2 revealed that computers, CD Rom/Radio, CD writers, LCD, monitor/modes, scan digital cameras, projector, video players and scanner are regularly used in most junior public secondary schools for instructional delivery in public junior secondary schools in Rivers State. The findings are in corroboration with Agboeze et al., (2012) who posited that many institutions around the world utilizes ICT devices as a facilitator for inculcating skills on students. Also, the finding is in line with Anderson and Glen (2008) who revealed that most teachers utilize e-teaching devices to facilitate learning delivery. Supporting these findings, the result of hypothesis 2 indicates no significant difference in the mean response of teachers on the extent of ICTs utilization for instructional delivery in public junior secondary schools in Port Harcourt Metropolis.

Result from Table 3 revealed that Teachers have the ability to connect basic computer components, boot and shut down computers, use CD Writers efficiently and correct usage of scan digital camera. These findings are in agreement with Onyenike (2010) who reported in is finding that about 80.7% of teachers have personal computers and admitted to have been introduced to some ICT tools during their training as teachers. The table also revealed that Teachers have the ability to effectively use LCD monitors, demonstrate correct usage of hand held machine and demonstrate correct usage of CD Rom/Radio for instructional delivery in public junior secondary schools in Port Harcourt Metropolis of Rivers State with a grand mean of 3.52 and standard deviation of 0.52. This finding is in agreement with Adesun and Maduekwe (2008) who opined that most Nigerian teachers possess higher level skills in the use of ICT tools, which include basic knowledge of computer and good understanding of basic computer terminology. The result from the hypothesis on Table 3 also supports these findings.

The findings from Table 4 revealed that barriers to ICTs integration for instructional delivery in public junior secondary schools in Port Harcourt Metropolis include insecurity, lack of skilled manpower to handle the affairs of the ICT gadgets, lack of training culture in internet skill, poor power supply in the school environment and inadequate fund for training. The findings are in line with Ezeugbor (2008) who posited that though lecturers have been exposed to ICT training, but the usage is constrained by insecurity, inadequate funding for maintenance of ICT gadgets. The findings are also in agreement with Daramola (2004) who opined that one of the factors militating against schools' ICT usage is inadequate skilled manpower. The table also revealed that expensive nature of computer tools and parts are some

barriers to ICT integration in junior secondary schools in Port Harcourt Metropolis. This finding is in agreement with Slone (2009) who revealed in his study that time, cost of computer purchase, fund and inadequate power supply restrain ICT integration in junior secondary schools.

CONCLUSION AND RECOMMENDATION

Based on the findings, the study deduced that Information and Communication Technology (ICTs) tools are made available in Public Junior Secondary Schools in Rivers State with competent teachers. However, the integration of these gadgets into instructional delivery is marred by poor power supply in the school environment, insecurity and half baked personnel for effective maintenance of these tools. Hence, the study recommend that government at all levels should make available steady power supply through installation of solar energy, employ adequate security to safe guide and prevent the ICT tools from theft. Finally, schools should retrain teachers through seminars, workshops and conferences as to make them more effective in the use of modern ICT tools to impart requisite skills to students.

REFERENCES

- Adeosun, A. O., & Maduekwe, A. N. (2008, August 18-21). *Language and communication skills for technology education: A need analysis and proposal for enhanced manpower development in Nigeria*. Paper presented at the Third Regional Conference on Higher Education for Youth Empowerment, Opportunities, Capabilities and Second chances held at International Institute for Tropical Agriculture, Ibadan Nigeria.
- Aderinoye, F. (2012). *Related through in Vocational Education: The developing World Experience*, Onitsha: Stan Printing and Publishing.
- Afe, C. A. (2013). *Methodology in Business Education*; Enugu: Okeke Nig. In association with De-Verge Agencies.
- Agboeze, M.U, Ugwuoke, C.U and Onu, F.M (2012). Quality assurance in the implementation of upper basic education (junior secondary school) agriculture curriculum: The way forward. *Nigerian Journal of Curriculum Studies* 18(2), 18-25.
- Anderson, D. & Glen, F. (2008). Challenges of Reform in Information and Communication Technology: The Secretarial Verbal Communication Competencies Perspective. *Paper presented at the Annual Conference of National Association of Business Education (NABE) Calabar*.
- Bingimlas, K. (2009). Barriers to the successful integration of ICT in teaching and learning environments. *Eurasia Journal of Mathematics, Science and Technology Education*, 5(3), 235-245.
- Daramola, I.S (2004). Knowledge and skills possessed by technical college graduates of building technology trade in Taraba State. *Journal of League of Researchers in Nigeria* 4 (1), 23-35
- Davis, S. (2009). Application of Management Information System (M.I.T.) in Tertiary Institutions in Nigeria. Retrieved from <http://www.0.es/1.2>.
- Ezeugbor, C. O. (2008). Information and Communication Technology Competence level of Nigerian Tertiary Institutions Teachers as a challenge to Harnessing the ICT gains in Education in Nworgu B. G. (ed). *Education in the information Age: global challenges and enhancement strategies*, Nsukka: University Trust Publishers.
- Federal Republic of Nigeria (FRN)(2013). *National Policy on Education*. Lagos: NERDC Press.
- Laudon, K & Laudon, J (2006). *Management Information Systems: Managing the Digital Firm*. 9th ed. Prentice Hall
- Khan, Md. S. H., Hasan, M. & Clement, C.K., (2012). Barriers to the introduction of ICT into Education in Developing Countries: *International Journal of Instruction*, 5 (2), 1-20.
- Nwana, O.C. (2008). *Introduction to Education Research for Students Teachers*. Ibadan: PZ Publishers Ltd.
- Objekunle, T. O. (2011). The Role of Computer in Education. *National Journal of Technical Education* 5(1 & 2), 26-33.

- Okeke, E. C. (2009). Female Environmental Education: Towards Integration for Role Reversal in Nigeria, *Nigeria Journal of Empirical Studies in Psychology and Education*, 1(6), 30-41.
- Onyenike, A. (2010). Quality Basic Education Development in Nigeria; Imperative for use of ICT CICE Hiroshima University. *Journal of International Cooperation in Education* 13 (2), 193–211.
- Slone, J.D (2009). Visualizing Qualitative Information. *Asian qualitative research association* 2 (13)
- Stanley (2014). The Effect of Modern Information and Communication Technology Tools on Instructional Delivery in Secondary Schools in Nigeria. *Journal of Office and Management Technology* 1(1) 20-26.
- Ubadi, S. C. (2011). Case Net: Teaching Decision via web-based Learning Environment in site 98: *Society for Information Technology and Teacher Education International Conference, Proceedings. Washington, D.C., March, 10-14.*
- Ugwuanyi, M. O. & Eze, M. E. (2008). An Assessment of the educational resources available for implementing business education programme in Nigerian Polytechnics. *Business Education Journal*, 6(2), 189-208.
- Williams, J. (2009). *The Worldwide Web and higher Education: The promise of virtual Universities and Online Libraries.*