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Acquisition and utilization of information and communication technology in the administration of secondary schools in Rivers State, Nigeria

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Abstract
The study examined the extent to which information and communication technology resources were acquired and utilized in the administration of public senior secondary schools in Rivers State. Four research questions guided the study and four hypothesis were tested at 0.05 level of significance. The study adopted the descriptive survey research design with a population of 741 administrative staff (Principals & Vice principals); and a sample of 254 was drawn with the aid of Krejcie and Morgan's sample size determination table. A self structured questionnaire titled "Questionnaire for utilization of information and communication Technology in schools" was used in eliciting information from respondents. The instrument was validated, and a reliability index of 0.83 was obtained by Pearson Product Moment Correlation test-rested scores. Out of the 254 copies of questionnaire sent out, 252 copies were properly filled and returned, 2 copies were damaged. The research questions were answered using mean and standard deviation, while the hypotheses were tested using z-test statistics. The findings revealed that the extent to which ICT resources were acquired was poor; it also revealed that the adopted managerial strategies in the use of ICT resources don't seem to be working in Rivers State Secondary Schools. Hence the following recommendations were made: (i) Public senior secondary schools' administrators in conjunction with the state Ministry of Education should endeavour to make useful efforts/polices that will promote the use of ICT resources.(ii) more ICT libraries should be opened to enable school administrators have access to internet.

Keywords: Acquisition of ICT, utilization of ICT, information and communication technology, and administration of schools

1. Introduction
Information and Communication Technology (ICT) has become most popular and easy means of disseminating information. For a nation to build its capacity to teens and youths, then ICT must fully be introduced at every level of Nigeria education. The concept of Information Technology (IT) refers to a system of harnessing technology for information processing needs in an organization, using the computer and telecommunication-based equipment for storage, processing and dissemination of information (Oyebisi, Ilorin, Adagunofy & Ugwu, 2002). While Information and Communication Technology is an umbrella term that includes any communication software, satellites systems and so on, as well as the various services, it is therefore, all embracing, that one needs to be electronically educated, and one major device for undertaking ICT is computer. The use of ICT to enhance or support learning and teaching in education has significant importance in secondary school education (Mikre, 2012) [8]. Hence, ICT skill is currently of great interest to governments at all levels, businesses and individuals. ICT has become a powerful tool in the fight against world poverty, by providing developing countries with an unprecedented opportunity to meet vital developmental goals, such as poverty reduction, basic health care and education at all level; far more effective than before (Kamssu, Sickpe & Ellzy, 2005). Educational administration at any level is concerned with achieving the goals of education. The purpose of school administration is to enable school heads (Headmasters or principals) embark on administrative strategies that enhance teaching and learning (Okah, 2005) [14]. School heads, in cooperation with the students, the teaching and non-teaching staff, make efforts that are aimed at implementing the policies laid down by the Ministry of Education, the State Education Board or the Local Government Service Commission. These policies are largely derived from the national objectives of education, which according to the National Policy on Education (2004:8) include the inculcation of national consciousness and national unity. The inculcation of the right type of values and attitudes for the survival of the individual and the Nigerian society. The training of the mind in understanding of the world around us. The acquisition of appropriate skills, abilities and competencies both mental and physical as equipment for the individual to live in and contribute to the development of his society. Information and Communication Technology (ICT) plays an important role in enhancing the quality of education at all levels in our society. Administration and management applications of ICT are currently popular in schools due to its capabilities in facilitating administrative activities from data storage to knowledge management and decision making (Afzaal, 2012) [1]. Computers are seen to have the potentials to make a significant contribution in teaching, learning, and administration in senior secondary schools. The ICT in schools provides hardware, software, and networking for staff development. This will be considered worthwhile due to the commensurate impact on school performance, effectiveness and efficiency (Carnoy, 2014) [3]. The use of ICT in educational administration has rapidly increased in recent time due to its efficiency and effectiveness. Information technologies facilitate the decentralization of

work task and their coordination in an interactive network of communication in real time (Carnoy, 2014) [3]. It is perhaps in respect to this reason that the United Nations Development Programme (UNDP), as cited by Minishi-Majana (2007) refers to ICT as "a powerful enabler of development" because of its significant impact on the economic, scientific, academic, social, political, and cultural and other facets of life. ICTs have no doubt become the modern day "developer" of the society, vis-à-vis schools. The potential of information and communication technology to transform development in both the developed and undeveloped world is on the increase, as recognized by government, non-governmental organizations (NGOs), corporations and global agencies such as the United Nations (UN). ICTs are tools that facilitate the production, transmission and processing of information (Grace, Kerny & King, cited by Eyo, Nkamu & Nkebem, 2011). The field of education has been affected by ICTs, which have undoubtedly affected teaching, learning, research and administration (Yusuf, 2005) [21]. A great deal of research has proven its benefits to the quality of education (Alansari, 2006). The ability to use computer effectively indicates an essential part of everyone's education. Skills such as bookkeeping, clerical and administrative work, stocktaking etc constitute a set of computerized practices that form the core ICT skills package: spreadsheets, word processing and databases (Reffel & Whitworth, 2002) [17]. Information and communication technology in schools today has become widespread in many societies worldwide. The extent to which it has been incorporated into the school system vary widely from simply as a tool to help produce documents to one that is fully integrated into the whole school management practices (Osodo, 2010) [15]. Educational institutions in Nigeria and other parts of the world, are increasingly becoming complex and multidimensional organizations, requiring tremendous inputs in terms of human, financial and physical resources. Schools with such working environments are bound to overwhelm the abilities of today's teacher/administrator if they are not aided in the performance of their school administrative duties. These imply that such development demands that educational institutions should modernize their tools of conducting the teaching and learning process to enhance the effectiveness of school administration and leadership. ICT is becoming a vital enabling tool that can no longer be ignored in the management of schools as the importance is evidently recognized in both workplace and at homes. However the resources that is invested by the government and school managers to enhance ICT use in the administration of public secondary schools especially in Rivers State has not been adequately addressed. Information communication technologies are information handling tools that are used to produce, store and process, distribute and exchange information. These different tools are able to work together, and combine to form network, which reaches into every corner of the globe. It is an increasingly powerful tool for participating in global markets, promoting political accountability, improving the delivery of basic services; and enhancing local development opportunities (UNDP, 2006) [20]. According to Ogunsola (2005), ICT is an electronic based system of information transmission, reception, processing and retrievals, which has drastically changed the way we think, we live and the environment in which we live. This therefore means that the schools and individual teachers need to put in place, measures for effective management of ICT use in school administration. One cannot over-estimate the utilization of ICT in everyday activities of schools. Nwosu (2003) [11]. noted that ICT assists the school administrators to meet the task of school management in the areas of curriculum and instruction, school community relationship and school business operations. Mohammed (2006) [9]. argued that the introduction of ICT in schools enhances the daily school routine, programme, solving individuals or groups as well as staff development. As stated by Gurr (2004) [4], individual centered-leadership stems from a shared vision involving the support of the whole school community (Schiller, 2002) [9]. ICT allows others to have a greater influence as school leaders. The principal's delegation of an ICT leader promotes the personal belief in the importance of ICT in the school. The ICT leader is an expert that supplies the principal with advice on ICT. The principal, with support of the ICT leader and school community can develop an ICT vision and e-learning plan aimed at developing a sustainable direction for ICT in teaching and learning, administration and business of the school organisation (Gronow, 2007). The introduction of ICT in public secondary schools is one of the significant changes in the educational system in recent time. Odera (2002) [12] carried out a study on the role of computers in secondary schools education and found out that computers play important roles; firstly in school administration to keep school fees records, store information for correspondence and to process examinations. Secondly, it is used for teaching students computer literacy skills. Thirdly, it is used for training teachers and non-teaching staffs in computer literacy. Results indicates that principals especially in the public secondary schools appreciate the introduction of computers in secondary schools and noted that school administration reported producing their accounts in an organized manner and more easily than before. According to Kiplagat (2011), schools are embracing computer technology to compliment the traditional classroom learning modes, administrative and management practices and therefore, both the students and the school administrators/managers need computer knowledge to function effectively in school. Many challenges facing ICT in public secondary schools ranges from inadequate funds for purchasing ICT equipments/materials, to lack of electricity supply, trained ICT profeesionals/teachers and promotion of ICT policies etc. The study further observes that there are shortages of teachers trained in the use of ICT in public secondary schools. Besides, little investment are been made in relevant computer software programs in these institutions. Therefore, there was need to investigate further, on how ICT resources are managed by public secondary school principals in Rivers State.

Statement of the Problem

Public senior secondary school was established to provide equal access to quality basic and secondary education that will ensure self-reliance, preparedness for further education, good citizenship and effective participation in democratic governance. But in recent years, secondary schools are faced with numerous administrative challenges among management staff, especially in the area of information and communication technology. Information and communication technology was introduced into secondary schools to enhance speedy innovation in the education

sector, but the space of acquisition of these ICT resources like computers, e-library, and infrastructures and so on and the means of ultilisation among management staff in public senior secondary schools is a problem in Rivers State. In 2014, the Rivers State government, under the administration of Rt. Hon. Rotimi Chibuike Ameachi supplied ICT resources to Universal Basic Education (UBE) schools to capture the basic aspect of learning, while the senior secondary schools are still expecting the second phase of the ICT relief materials till date. It is as a result of this challenge, that the research is spurred on what could be done avert this ugly scenario. Hence, the need for the study on the acquisition and utilization of information and communication technologies in the administration of public senior secondary schools, in Rivers State.

Purpose of the Study

The study examined the extent to which information and communication technology are acquired and utilized in the administration of public senior secondary schools in Rivers State. Specifically, the study determined:

1. The extent to which ICT resources are acquired for the administration of schools in Rivers State
2. The types of ICT resources that are acquired for the administration of school in Rivers State.
3. The extent to which the ICT resources are distributed accurately to the various secondary schools in Rivers State.
4. The extent to which ICT resources acquired are utilized for the administrative purpose in public schools, Rivers State.

Research Questions

The following research questions guided the study.

1. What ICT resources are acquired for the administration in public senior secondary schools, Rivers State?
2. What are the types of ICT resources acquire for administration in public senior secondary schools, Rivers State?
3. To what extent are these ICT resources distributed accurately to public senior secondary schools in Rivers State?
4. To what extent are the acquired ICT resources utilized for administrative purposes in public senior secondary schools, Rivers Sate?

Hypotheses

The follow null hypotheses were tested for this study at 0.05 level of significance.

1. There is no significant difference between the mean rating of principals and vice principals on the extent to which ICT recourses are acquired for the administration of public senior secondary schools in Rivers State.
2. There is no significant difference between the mean rating of principals and vice principals on the extent to which the required types of ICT resource are acquired in public senior secondary schools in Rivers State.
3. There is no significant difference between the mean rating of principals and vice principals on the extent to which the ICT resources are accurately distributed to the various public senior secondary schools in Rivers State.
4. There is no significant differences between the mean rating of principals and vice principals on the extent to which ICT resources are utilized for administrative purposes in public senior secondary schools in Rivers State.

Methodology

The study adopted descriptive survey design. The population of study comprised 741 administrative staff (school principals and vice principals). Out of this, a sample of 254, using Krejcie and Morgan (1970) sample size determination table was draw, using stratified random sampling techniques to select the respondents. A 28 items, researchers made structured questionnaire was used to elicit information from the respondents. The questionnaire adopted a four point Likert scale of Very high extent (VHE)-4points, High extent (HE)-3points, Low extent (LE)-2points and Very low extent (VLE)-1point. The questionnaire was validated by two experts in ICT and Educational Measurement and Evaluation. The questionnaire was further subjected for a reliability test using the Pearson Product Moment Correlation to calculate the test re-test of bivariate distribution to have an index (r) of 0.83. The mean and standard deviation were used to answer the research questions while z-test statistics was used to analyze the hypotheses at 0.05 level of significance. A decision rule was taken on a criterion mean of 2.50. Items scores of 2.50 and above were considered accepted and those below 2.50 were rejected. Each item scores was further classified in the following ranges. Very Low Extent 0-1.49; Low Extent 1.50-2.49, High Extent 2.50-3.49 and Very High Extent 3.5-4.00.

Results

4.1 Research question 1: What are the types of ICT resources acquire for administration in public senior secondary schools, Rivers State?

Table 1: Mean Response on the extent of Utilization of ICT Resources

S/N	Items	Principals				V. Principals			
		N.	$\bar{x}_1$	Sd_1	Remarks	N.	$\bar{x}_2$	Sd_2	Remarks
1	There are enough computers for administrative purposes.	85	1.21	1.08	VLE	167	1.30	1.04	VLE
2	There is less maintenance of computer system in my school.	85	2.79	0.73	HE	167	2.50	0.71	HE
3	Computers are given to public secondary schools on Termly basis.	85	1.70	0.87	LE	167	1.71	0.86	LE
4	The schools have a functional e-library.	85	1.21	1.08	VLE	167	1.41	0.99	VLE
5	Our students learn with projector.	85	2.09	0.82	LE	167	2.00	0.72	LE
6	All the schools document are hard copies	85	3.75	1.06	VHE	167	3.40	0.91	VHE
7	There is less or little policies on ICT administration in my school.	85	2.87	0.75	HE	167	2.47	0.71	LE
	Aggregate		2.23	0.92	LE		2.13	0.85	LE

***Source*:** Field Survey, 2019

The table 4.1 above shows that ICT resources are poorly acquired to a very low extent for administration of public senior secondary schools in Rivers State, with an aggregate mean scores of 2.23 and 2.13 respectively; which are both less than the criterion mean of 2.50.

4.2 Research Question 2: What are the types of ICT resources acquire for administration in public senior secondary schools, Rivers State?

Table 2: Mean Response on the extent of Utilization of Ict Resources.

S/N	Items	Principals				V. Principals			
		N.	$\bar{x}_1$	Sd_1	Remarks	N.	$\bar{x}_2$	Sd_2	Remarks
8	In my school all relevant information are stored in the computer.	85	1.60	0.37	LE	167	1.41	0.99	VLE
9	Internet resources are provided in my school to aid educational services.	85	1.65	0.89	LE	167	1.59	0.91	VLE
10	Projectors are used to enhance teaching and learning in public senior secondary schools.	85	3.41	0.92	VHE	167	3.35	0.89	VHE
11	Electronic board are acquired and utilized in public senior secondary schools.	85	3.79	1.08	VHE	167	4.00	1.18	VHE
12	Computer accessories (e.g UPS, printers, modern, Hard disk are acquired and utilized for educational services.	85	3.79	1.08	VHE	167	3.88	1.12	VHE
13	There are trained ICT personnels to administer ICT services in schools.	85	2.67	0.72	HE	156	2.49	0.71	LE
14	ICT resources in schools are accessible to administrative staff.	85	3.75	1.06	VHE	167	3.59	0.98	VHE
	Aggregate		2.95	0.87	HE		2.90	0.97	HE

Source: Field Survey, 2019

Table 4.2 above has a mean response of 2.95 and 2.90 which are both greater than the criterion mean of 2.50. This indicates that, the few ICT resources in circulation are fully utilized to a high extent.

4.3 Research Question 3: To what extent are these ICT resources distributed accurately to public senior secondary schools in Rivers State.

Table 3: Mean Response on Policies Provided by Principal for the Distribution of ICT

S/N	Items	Principals				V/ Principals			
		N.	$\bar{x}_1$	Sd_1	Remarks	N.	$\bar{x}_2$	Sd_2	Remarks
15	Group WhatsApp for communication among staff.	85	1.21	1.13	VLE	167	2.00	0.72	LE
16	Fees payment should be on-line.	85	1.65	0.89	LE	167	1.70	0.86	LE
17	Money payment should be by bank transfer.	85	1.53	0.94	LE	167	1.90	0.80	LE
18	Parent should pay fees by POS.	85	2.79	1.08	HE	167	3.80	1.08	VHE
19	Funds are provided for acquisition of ICT resources.	85	3.27	0.86	VHE	167	3.50	0.95	VHE
20	Money is provided for data purchasing for the administrative staff.	85	1.05	1.16	VLE	167	1.80	0.83	LE
21	Staff should have a data base for information dissemination for record keeping.	85	2.20	0.73	LE	167	2.50	0.71	HE
	Aggregate		1.96	0.97	LE		2.45	0.85	LE

Source: *Field Survey, 2019*

From table 4.3 above, the mean response reveals the discrepancy on the extent to which ICT resources are distributed accurately to public secondary schools in Rivers State, with an aggregate mean scores of 1.96 and 2.46 for both Principals and Vice Principals are less than the criterion mean of 2.50

4.4 Research Question 4: The extent to which ICT resources acquired are utilized for the administrative purpose in public schools, Rivers State.

Table 4: Mean Response on the extent to which Ict Resources are Utilize in Public Secondary Schools**.**

S/N	Items	Principals				V. Principals			
		N.	$\bar{x}_1$	Sd_1	Remarks	N.	$\bar{x}_2$	Sd_2	Remarks
22.	There is constant renewal of computer systems in public secondary schools in Rivers State.	85	1.32	1.03	VLE	167	1.30	1.04	VLE
23.	Periodic updating of software programs of computer systems.	85	2.79	0.73	HE	167	2.80	0.73	HE
24	There are sufficient managers or operators of ICT equipments.	85	2.27	0.66	LE	167	2.50	0.71	HE
25.	Average provision of teaching aids and supplementary materials in schools.	85	3.79	1.08	VHE	167	3.60	0.99	VHE
26	An interrupted power supply pack for every set of computer systems.	85	2.08	0.77	LE	167	2.00	0.72	LE
27	Government pays for electricity supply.	85	2.83	0.74	HE	167	2.80	0.73	HE
28	All ICT equipment has an accurate record of its quantities in the schools.	85	3.03	0.78	VHE	167	3.40	0.91	VHE
	Aggregate		2.59	0.83	HE		2.63	0.82	HE

Source: Field Survey, 2019

The table 4.4 above demonstrates that the aggregate mean responses of 2.59 and 2.63 are greater than the criterion mean of 2.50. This indicates that there are lots of challenges facing the use of ICT resources in Public Senior Secondary Schools in Rivers State.

Hypothesis 1: There is no significant difference between the mean rating of principals and vice principals on the extent to which ICT recourses are acquired for the administration of public senior secondary schools in Rivers State.

Table 5: Z-Test Analysis on the extent to which Ict Resources are acquired

Respondents	N	$\bar{X}$	sd	df	z-cal.	z-crit	Remark
Principals	85	2.23	0.92				
				250	0.84	1.96	Accepted
V. Principals	167	2.13	0.85				

P<0.05

Table 4.5 above revealed that z-calculated 0.84 is less than z-critical value 1.96 for degree of freedom 250 at 0.05 level of significance. This implies that, the differences between the mean scores of principals and vice principals on the extent to which they require ICT resources are acquired was not significant at 0.05. Hence, the null hypothesis was accepted.

Hypothesis 2: There is no significant difference between the mean rating of principals and vice principals on the extent to which the required types of ICT resource are acquired in public senior secondary schools in Rivers State.

Table 6: Z-Test Analysis on the Types of ICT Acquired

Respondents	N	$\bar{X}$	sd	Df	z-cal.	z-crit	Remark
Principals	85	2.95	0.87				
				250	0.41	1.96	Accepted
V. Principals	167	2.90	0.97				

P<0.05

From table 4.6 above, z-calculated 0.41 is less than z-critical value 1.96 for degree of freedom 250 and 0.05 level of significance. This signifies that, there is no significant different between the mean scores of principals and vice principals on the extent to which the required ICT resources are distributed to public senior secondary schools, Rivers State.

Hypothesis 3: There is no significant difference between the mean rating of principals and vice principals on the extent to which the ICT resources are accurately distributed to the various public senior secondary schools in Rivers State.

Table 7: Z-Test Analysis on how ICT Resources are Distributed Accurately.

Respondents	N	$\bar{X}$	Sd	df	z-cal.	z-crit	Remark
Principals	85	1.96	0.97				
				250	4.18	1.96	Rejected
V. Principals	167	2.46	0.85				

P<0.05

The table 4.7 above demonstrated that z-calculated is less than z-critical 4.18>1.96 for degree of freedom 250, at 0.05 level of significance. Meanwhile, the null hypothesis was rejected.

Hypothesis 4: There is no significant differences between the mean rating of principals and vice principals on the extent to which ICT resources are utilized for administrative purposes in public senior secondary schools in Rivers State.

Table 8: Z-Test Analysis on the extent to which ICT Resources are utilized

Respondents	N	$\bar{X}$	sd	Df	z-cal.	z-crit	Remark
Principals	85	2.59	0.83				
				250	-0.36	1.96	Accepted
V. Principals	167	2.63	0.82				

P<0.05

The table 4.8 above indicated that z-calculated -0.36 is less than z-critical value 1.96 for degree of freedom 250 at 0.05 level of significance. This implies that, there is no significant difference in the mean scores of principals and vice principals on the extent to which ICT resources are utilized in public senior secondary schools in Rivers State. Thus, the null hypothesis was accepted.

Discussion of Findings

Research question one has an aggregate mean responses of 2.23and 2.13 which are below the criterion mean of 2.50, while hypothesis one accepted where the z-critical value 1.96 was greater than z-calculated of -4.18. This implies that the required ICT resources are not acquired for the administration of public senior secondary schools in Rivers State. This is in line with Kayode (2015) [6], that ICT is an ascent in new learning opportunities than the conventional book-educators model. Research question two and hypothesis two are of the opinion that ICT resources are not distributed to Rivers State public senior secondary schools with mean responses of 2.95 and 2.90 which are greater than the criterion mean of 2.50 and z-critical value which is greater than the z-calculated of -0.36. This simply portraits the weakness in the distribution of ICT materials/resources by the state government to public senior secondary schools. This is in view with Mundy and Sultan (1999) that only one of every 900 Africans outside South-Africa have access to internet compared to 138 of the rest part of the world. Research question three also have an aggregate mean scores of 1.96 and 2.46 which are less than the criterion mean indicating that the adopted administrative strategies adopted by principals and vice principals in the use of ICT resources does not work in Rivers State public senior secondary schools. Research question four and hypothesis four also shows a low turn-out on the extent to which ICT resources are utilize in public senior secondary schools in Rivers State. According to Madilia (2013) [7], the problem of insufficient managers in public senior secondary schools is on the increase, hence, there is strong need for qualified professional teachers to operate and maintain existing infrastructure in public senior secondary schools.

Conclusion

Conclusively, the findings reveal a high level of disorderliness among administrative staffs in policy making/promotion in the use of ICT for secondary schools administration in Rivers State. The four research questions have their mean sets that was below or less than the criterion mean of 2.50; this indicates that the government has not done what which is expected of them when it comes to acquisition and utilization of ICT resources in public senior secondary schools in Rivers State. The study shows a high

level of neglect by the government in the acquisition of computers, opening of e-libraries, providing constant power supply among other things as means of promoting the use of ICT resources in public senior secondary school administration in Rivers. Henceforth, this study will serve as a guide to all administrative staff on how to go by proper acquisition and utilization of ICT resources in order for our secondary schools to be digitalized as required by UNESCO standard.

Recommendations

The researchers recommended the following

1. That public secondary schools administrators in conjunction with the ministry of education should make useful policies that will promote and enhance the use of ICT resources.
2. The ICT resources should be left in the hand of one person or party, but should be a collective effort by principals and board members.
3. The team of usage of ICT resources should be free among principals, teachers, students, and non-academic staff within the school environment.
4. E-Librarians should be opened and equipped in order to enhance computer skills and promote research among students and teaching staffs.
5. There should be constant power supply for better assessment and utilization of the ICT resources.
6. The ministry of education (state & federal) should make efforts in posting teachers, skilled in ICTs to the different secondary schools.

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