

Availability and Utilization of ICT in Secondary Schools in Rivers State

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Abstract: The study examined availability and utilization of ICT in Secondary Schools in Rivers State. The study adopted the descriptive research design. Three research questions guided the study, while three hypotheses were tested at 0.05 level of significance. The population of the study comprised of all the 455 secondary schools both public and private schools in Rivers State. The sample size of the study was 136 respondents. Simple random sampling technique was used to select 10 schools using 30% of the study. The reliability of the instrument was ascertained using Cronbach Alpha method. The overall reliability was 0.73 indexes. The availability and utilization of Information and Communication Technology Questionnaire. (AUICTQ) was used for data collection. Data were collected through the researcher with the help of two research assistants. Means, standard deviation and rank order were used to answer the research questions, while Z-test was used to test the hypotheses at 0.05 level of significance. It was found that the extents of ICT accessibility are not available in secondary schools in Rivers State.

Keywords: Availability, Utilization, ICT, Administration, Secondary Schools.

I. INTRODUCTION

The world of today is characterized by revolutionary advances powered by Information and Communication Technology (ICT). The world is being reduced to a global village through the use of information and communication technology. ICT promotes national development and better relationship with other nations. ICT refers to the electronic and communication devices associated with human social materials that enable the individuals to use them for a whole range of instructional process. Information and communication technology facilities are described as all the equipment's available for the identification, generation, processing, storage, packaging, preservation, and conservation and sending of information, regardless of time and location challenges. In other words, Information and Communication Technologies are information handling tools used for producing, storing, processing, distributing and exchanging of information. ICT facilities influence and affect people's and corporate work life in one way or the other. These ICT facilities are all encompassing in areas like technology, socialization, politics, economics and education, for global transformation. Therefore, it becomes pertinent for administrators, who serve as key implementers of the nation's educational policy, to be well-informed and adequately equipped with ICT facilities in order to enhance their

performance in this age of information explosion and technological advancement.

The Federal Ministry of Education (2010) identifies the role of ICT policy on education as stated as follows;

"The policy provides the needed guidance on what is expected in the entire process of ICT integration in education to all stakeholders in education. Its' implementation, therefore, should lead to a speedy transformation of the teaching, learning and administration of education. This in turn will foster the production of graduates in the education system that can survive in the contemporary society, sustain national development and compete globally". (p.3).

The realization of this policy statement lies basically in the capability of the key implementers of the nation's educational policy i.e. teachers to integrate ICT-Driven instructional aides effectively through Computer Assisted mode of Instruction (CAI) in their day to day classroom activities for effective pedagogy. It is clear that ICT is a world of its own, it has various diversified aspects. The aspect relevant to this study is ICT-Driven Instructional aide basically, the "Computer Assisted mode of Instruction" (CAI). Computer Assisted Instruction (CAI) is one of the products of computer technology and it proves to be an effective method of instruction delivery. It is pertinent to note that CAI has a major advantage of individualizing instruction by presenting varied and flexible experiences to the individual learner and takes care of learners' indifference. It also makes use of guided discovery and inquiry method which ensure the application of effective teaching methods to the learner. It therefore implies that the provision of these ICT-driven Instructional facilities on their own cannot make any impact on the students' academic performance until they are effectively utilized in the teaching and learning process. This informs the basis of investigating into the topic "Availability and Utilization of Information and Communication Technology in Secondary Schools in Rivers State".

The National Policy on Education states that education is an instrument for effecting national development (FRN, 2004). It makes the incorporation of ICT into teaching-learning process a vital instructional tool in fostering the national educational goals and development. To buttress this, the development and role of ICT plays in the academic sector is believed to set the pace for any form of innovation and changes that can ever

happen to any society. It is believed that the winds of change in today's education sector have made information communication technology to be programmed towards meeting the set educational goals.

There are challenges and concerns as a result of knowledge explosion due to the introduction of ICT in almost every field of human endeavor, which calls for an awakening in teaching profession likewise. Teachers need to be conscious of the quality of their teaching which is determined by the quality of teaching aids used such as chart, model-static, specimen and slides. As an information handling tool, ICT can be used in producing, storing, processing, distributing and exchanging of information. It therefore, implies that ICT could help teachers to be more effective in work-life and resourceful in content management. Hence, these will make teaching tasks to become less cumbersome and productive thereby improving students' academic performance. Basically, the utilization of ICT-Driven instructional aides through CAI is meant to serve as an orientation stimulus to support the teachers' teaching strategies and not to replace them. A paradigm shift from the traditional "chalk and talk" form of teaching to the use of ICT through CAI could make teaching-learning process more real and practical, thereby resulting to better performances of students academically. However, this hinges strongly on the ability and capability, as well as the effectiveness of teachers to incorporate teaching strategies such as CAI, which uses ICT-Driven instructional aids in achieving the objectives of lesson at the classroom level.

The benefits of ICT as an important tool in teaching and learning of wide range of topics in Economics such as; statistics, measures of central tendency and national income could enable them understand and learn the subject better. Minimal attention has been given to the improvement of teaching and learning of economics in recent decades. Passive learning based on the outdated form of "chalk and talk" has widely characterized the 20th century style of teaching in Asia. This in-turn could pose a threat to development of a nation like Nigeria, having education as the instrument "par excellence" for effecting national development. Therefore, if Nigeria will meet up with the global technological advancement through the use of ICT, then, education must be given utmost priority and teacher education must be its guiding principle since no nation can rise above the standard of her teachers (FRN, 2004). The Federal Ministry of Education (2010) has mandated the combination of ICT in education for speedy transformation of teaching, learning and administration of education as a positive step in the right direction. Therefore, it becomes pertinent that a study on the "Availability and Utilization of ICT in Secondary School in Rivers State" be conducted to ascertain its impact on the learners. For ICT to enhance teaching for secondary schools, particularly in Rivers State, is through constant use of the above identified ICT tools by the teachers. However, the use of the above identified ICT

components can enhance teaching and improve quality education by making the present time teaching student-centered; making the retention and accumulation of knowledge the main objective of teaching; ensuring teaching emphasizes hands-on activities where students lead discovery as well as ensure that students understand, apply and analyze facts. Hence this study examined the ways information and communication technology components can be used in teaching in secondary schools in Rivers State. The main purpose of computer education was for computer literacy and skills needed in the 21st century classrooms and outside the classroom. It goes beyond reading computer books and pamphlets. It really requires skills, abilities and competencies in the use of computer. For instance it requires digital literacy and skills, hardware literacy and skills, software literary and skills; and computer packages integration and usage skills. Others are networking skills and multimedia systems literacy and skills. The need for availability and utilization of ICT resources in teaching-learning situations is on the increase. The perceived prevalence and seriousness of incompetence and poor quality of education which is the result of non-application of ICT is one of the biggest problems plaguing the school system, globalization, quest for quality education and market competitiveness has posed more challenges for ICT to become indispensable tool for secondary schools in Rivers State. This study therefore determined the availability and utilization of ICT in secondary schools in Rivers State.

Statement of the Problem

Secondary school education has become more complex due to the increase in the number of students' enrolment as well as the number of programmes being offered. Hence, its management demands more from the administrators to achieve the set goals. Due to this complexity, School administrators are sometimes faced with the challenge of managing schools in a meaningful and effective way. Some of the problems faced include poor communication within the staff and students and even with external governing bodies of the school and sometimes effective planning because most of the processes are still carried out manually. Hence, this study therefore determined the availability and utilization of ICT in secondary schools in Rivers State. The availability of ICT in secondary schools in Rivers State is assumed or reported that in most areas, there are ICT equipments or school plants, but are not effectively utilized while in other areas, they are scarcely available and are over utilized by the users. The information technological age offers ICT instructional strategies to erase the manual usage in school administration. Innovative use of ICT in the administration process in most secondary schools in Rivers State Seems not to be widespread. This appears to be made difficult by several constraints which include lack of funds to sustain ICT Infrastructure, the inability of secondary school administrators to keep up with the pace of development in ICT, the lack of the staff with appropriate skills to manage ICT both at the strategic and operational levels, epileptic electricity supply or complete

absence of it in schools affects institutional policies to support and guide the use of ICT. The low level of internet usage, inadequate computers and its accessories, and lack of internet access point will result to a poor attitude towards the use of internet, the low level of application of ICT in secondary school system pose a serious threat to the ability of the school administrator to handle large volume of information at a fast rate and it will also pose a threat to other policies implementation within the educational sector. These identified problems therefore, have informed the need to conduct a study on the “Availability and Utilization of ICT in Secondary Schools in Rivers State”.

II. PURPOSE OF THE STUDY

The main purpose of the study was to determine the Availability and utilization of information and communication technology (ICT) in Secondary Schools in Rivers State, specifically the study sought to ascertain the following;

1. To investigate the availability of ICT facilities in secondary schools in Rivers state.
2. Examine the extent to which students are exposed to the use of ICT in secondary schools in Rivers state
3. Examine the level of utilization of ICT facilities in secondary schools in Rivers state.

Research Questions

The following research questions were posed to guide the study:

1. What is the extent of availability of ICT in secondary schools in Rivers State?
2. To what extent are students exposed to ICT in secondary schools in Rivers State?
3. What are the levels of utilization of ICT facilities in secondary schools in Rivers State?

Hypotheses

The following hypotheses were formulated to be tested at 0.05 level of significance

1. *Ho1*: There is no significant difference between the urban and rural secondary schools in Rivers State on their mean rating on the availability of ICT in secondary schools in Rivers state
2. *Ho2*: There is no significant difference between the urban and rural secondary schools in Rivers State on their mean rating on student’s exposure on CT in secondary schools in Rivers state
3. *Ho3*: There is no significant difference between the urban and rural secondary schools in Rivers State on their mean rating on the levels of utilization of ICT in secondary schools in Rivers state.

III. METHODOLOGY

The study adopted the descriptive research design. The population of this study was 455 secondary schools in Rivers State. The sample size of the study was 136 respondents, comprising of 76 teachers in Urban and 60 teachers in rural areas. Simple random sampling technique was used to select 10 schools using 30% of the study. The Availability and Utilization of Information and Communication Technology Questionnaire. (AUICTQ) was used for data collection. This instrument was face validated by experts and the overall internal consistency reliability co-efficient index obtained through Cronbach Alpha method was 0.73. Data were collected through direct delivery method by the researcher and two research assistants. Means, standard deviation and rank order were used to answer the three research questions while Z-test was used to test the hypotheses at 0.05 level of significance.

IV. RESULTS

Research Question one: what is the extent of availability of ICT in secondary schools in Rivers State?

Table1: Descriptive statistics of mean and standard deviation on the extent of availability of ICT in secondary schools in Rivers State.

S/N	Items	VHE	HE	LE	VLE	Mean	Std	Remark
1	Computers either in offices or Classes	65	26	21	24	3.02	1	VHE
2	Computer Room/Lab	78	88	3	1	3.43	0.56	VHE
3	Computer Based Test (CBT) Software	31	27	83	29	2.35	1	VLE
4	database software such as Access and Excel	31	27	83	29	2.35	0.9	VLE
5	presentation software such as power point	22	11	93	44	2.06	0.91	VLE
6	Overhead Projectors	13	34	74	49	2.06	0.89	VLE
	Grand Mean					2.16	0.87	Very Less Extent

Data on Table1 shows the mean ratings and standard deviation of teachers in secondary schools on the extent of availability of ICT in secondary schools in Rivers State. The Table shows that teachers responded to very high extent on items 1, and 2

with the mean score of 3.02 and 3.43 respectively which is above the criterion mean of 2.50 but responded to very less extent on items, 3, 4, 5, and 6 with the mean score of 2.35, 2.35, 2.06 and 2.06 respectively which is below the criterion

mean of 2.50. The grand mean score for teachers was 2.16 and 0.87 respectively which means that the respondents were of the opinion that there is a very less extent on the availability of ICT in secondary schools in Rivers State. However, with

the responses, it shows that there is a very less extent on the availability of ICT in secondary schools in Rivers State.

Research Question 2: To what extent are students exposed to ICT in secondary schools in Rivers State?

Table2: Descriptive statistics of mean and standard deviation of teachers on the extent students are exposed to ICT in secondary schools in Rivers State.

S/N	Items	VHE	HE	LE	VLE	Mean	Std	Remark
7	For examination purposes	63	54	24	29	2.89	1.09	VHE
8	To learn new things needed to improve their learning skills and knowledge of their subject areas	73	65	21	11	3.18	0.88	VHE
9	To communicate and share ideas with one another	36	34	67	33	2.43	1.03	VLE
10	For regular classroom instructions	46	34	33	57	2.41	1.21	VLE
11	Stimulates student's activities in accessing their results.	45	39	31	55	2.44	1.19	VLE
	Grand Mean					2.67	1.08	Very High Extent

Data on Table 2 shows the mean ratings and standard deviation of teachers in secondary schools on the extent students are exposed to ICT in secondary schools in Rivers State. The table shows that teachers responded to very high extent on items 7, and 8 with the mean score of 2.89, and 3.18 respectively which is above the criterion mean of 2.50 but responded to very less extent on items, 9, 10, and 11 with the

mean score of 2.43, 2.41, and 2.44 respectively which is below the criterion mean of 2.50. The grand mean score was 2.67 and 1.08 respectively which means that the respondents were of the opinion that students are exposed to a very high extent to ICT in secondary schools in Rivers State.

Research Question 3: What are the levels of utilization of ICT facilities in secondary schools in Rivers State?

Table 3: Descriptive statistics of mean and standard deviation of teachers on the levels of utilization of ICT facilities in secondary schools in Rivers State

S/N	Items	VHU	HU	U	LU	Mean	Std	Remark
12	The use of computerized database in exams and records department	73	82	11	4	3.32	0.7	VHU
13	The use of photocopier machine, scanners and Printers	83	64	10	13	3.28	0.88	VHU
14	The use of computer systems for practical's	66	77	19	8	3.18	0.81	VHU
15	The use of computer based test (CBT) software for internal and external examination	33	17	63	57	2.15	1.09	LU
16	The use of e-mail or fax machine to send or receive messages	82	59	21	8	3.26	0.85	VHU
	Grand Mean					3.04	0.86	Very High Utilized

Data on Table 3 shows the mean ratings and standard deviation of teachers in secondary schools on the levels of utilization of ICT facilities in secondary schools in Rivers State. The table shows that teachers responded to very high utilized on items 12, 13, 14 and 16 with the mean score of 3.32, 3.28, 3.18, and 3.26 respectively which is above the criterion mean of 2.50 but responded to less utilized on item 15, with the mean score of 2.15 which is below the criterion mean of 2.50. The grand mean score was 3.04 and 0.86 respectively which means that the respondents were of the opinion that ICT facilities are highly utilized.

mean rating on the extent of availability of ICT in secondary schools in Rivers State

Table 4: z-test analysis of the difference between the mean ratings of Urban and rural area teachers on the extent of availability of ICT in senior secondary schools in Rivers State.

Groups	N	Mean	Std	Df	z-cal	z-crit	Remark
Urban	82	2.21	0.79	168	4.15	+1.96	Rejected
Rural	54	1.72	0.75				
N=	136						

Test of Hypotheses

H01: There is no significant difference between the urban and rural secondary schools in Rivers State on their

Data on Table 4 shows the summary of subjects mean standard deviation and z-test of difference between the mean ratings of urban and rural area Teachers in secondary school

in Rivers State on the extent of availability of ICT in secondary schools in Rivers State. It showed that teachers in urban area have mean and standard deviation scores of 2.21 and 0.79 while teachers in rural area have mean and standard deviation scores of 1.72 and 0.9 respectively the calculated z-value, used in testing the hypothesis stood at 4.15, while the z-critical value stood at ± 1.96 using 168 degrees of freedom. At 0.05 level of significance, the calculated z-test value of 4.15 is greater than z-critical value of ± 1.96 ; hence the null hypothesis is rejected, so therefore there is a significant difference between teachers in urban and rural secondary schools in Rivers State on their mean rating on the extent of availability of ICT in secondary schools in Rivers State.

Ho₂. There is no significant difference between the urban and rural secondary schools in Rivers State on their mean rating on student's exposure on ICT in secondary schools in Rivers state

Table 6: z-test analysis of the difference between the mean ratings of Urban and rural area teachers on student's exposure on ICT in secondary schools in Rivers state.

Groups	N	Mean	Std	df	z-cal	z-crit	Remark
Urban	82	2.69	0.93	168	8.45	+1.96	Rejected
Rural	54	1.68	0.63				
N=	136						

Data on Table 6 shows the summary of subjects mean standard deviation and z-test of difference between the mean ratings of urban and rural area Teachers in secondary school in Rivers State on student's exposure on ICT in secondary schools in Rivers state. It showed that teachers in urban area have mean and standard deviation scores of 2.69 and 0.93 while teachers in rural area have mean and standard deviation scores of 1.68 and 0.63 respectively the calculated z-value, used in testing the hypothesis stood at 8.45, while the z-critical value stood at ± 1.96 using 168 degrees of freedom. At 0.05 level of significance, the calculated z-test value of 8.45 is greater than z-critical value of ± 1.96 , hence the null hypothesis is rejected, so therefore there is a significant difference between teachers in urban and rural secondary schools in Rivers State on their mean rating on student's exposure on ICT in secondary schools in Rivers state

Ho₃. There is no significant difference between the urban and rural secondary schools in Rivers State on their mean rating on the levels of utilization of ICT in secondary schools in Rivers state.

Table 7: z-test analysis of the difference between the mean ratings of Urban and rural area teachers on the levels of utilization of ICT in secondary schools in Rivers state.

Groups	N	Mean	Std	df	z-cal	z-crit	Remark
Urban	82	2.95	0.99	168	9.88	+1.96	Rejected

Rural	54	1.64	0.75				
N=	136						

Data on Table 4.7 shows the summary of subjects mean standard deviation and z-test of difference between the mean ratings of urban and rural area Teachers in secondary school in Rivers State on the levels of utilization of ICT in secondary schools in Rivers state. It showed that teachers in urban area have mean and standard deviation scores of 2.95 and 0.99 while teachers in rural area have mean and standard deviation scores of 1.64 and 0.75 respectively the calculated z-value, used in testing the hypothesis stood at 9.88, while the z-critical value stood at ± 1.96 using 168 degrees of freedom. At 0.05 level of significance, the calculated z-test value of 9.88 is greater than z-critical value of ± 1.96 , hence the null hypothesis is rejected, so therefore there is a significant difference between teachers in urban and rural secondary schools in Rivers State on their mean rating on the levels of utilization of ICT in secondary schools in Rivers state.

V. DISCUSSION OF FINDINGS

Extent of Availability of ICT in Secondary Schools in Rivers State

The results on the extent of ICT in secondary schools in Rivers State revealed that out of the 6 items in the questionnaire, ICT facilities are not available in schools in the rural area; rather they are scarcely available in the urban area. This finding is in line with Egomo, Enyi and Tah (2012) whose study revealed that availability of ICT facilities is significantly low. The finding is also in line with Achimugu, Oluwagbemi and Oluwaranti (2010) whose study revealed that Public institutions in Nigeria lack adequate ICT facilities. Walson (2018) revealed that the usage of ICT was high in urban schools and low in rural schools. This finding is also consistent with the findings of Ubulom, Enekit, Onuekwq and Amaehule (2011) Ugwu and Oboegbulem (2011), Jude and Dankaro(2012) that ICT facilities are not available in schools. This confirms the report of Effiong (2005) and Jegede and Owolabi (2008) that ICT materials such as computers, radio set, Skype, printers, scanners, video recorder, teleconferencing and books on ICT are not available and are not adequately being utilized in Nigerian secondary schools for computer education. Again, the findings agree with that of Seiden (2000) and Uhaegbu (2001) for Nigeria which revealed a low level of usage of ICT equipment and facilities in secondary schools.

Extent Students Are Exposed To ICT in Secondary Schools in Rivers State

The results on the extent students are exposed to ICT facilities in secondary schools revealed that in urban area, they are exposed for examination purposes, to learn new things needed to improve their learning skills and knowledge of their subject

areas, for regular classroom instructions, and are not exposed in the area of communicating and sharing ideas with one another and to Stimulate student's activities in accessing their results. On the other hand, in rural area students are not exposed in the area listed in research question 2. This result is in agreement with that of Obi and Ibezim (2011) which revealed that the extent of exposure of students in the area of ICT in schools is very low. The findings is also in agreement with the findings of Adegbemile(2012) that the available ICT facilities were not adequate in schools and their utilization was a matter of concern. Again, Ajayi and Haastrup, (2009) revealed that ICT facilities were lacking in schools and teachers were to a little extent exposed to the use of ICT.

Levels of Utilization of ICT Facilities in Secondary Schools in Rivers State

The results on the level of utilization of ICT facilities in secondary schools in Rivers state revealed that in urban area, they are utilized in the area of computerized database in exams and records, the use of photocopy machine, scanners and printers, use of computer systems for practical and the use of e-mail or fax machine to send or receive messages, on the other hand, in rural area ICT facilities are not utilized in all the items listed in research question. Walson (2018), findings revealed that most specific uses of ICT by teachers are in the areas of checking email, accessing research materials and news update. This finding is also in line with Adegbe (2013) that ICT facilities are less utilized in public schools. Furthermore it was also observed that complete absence or low internet access, and constant power outages are major handicap to the utilization of ICT facilities in Public schools.

VI. CONCLUSION

On account of the findings it was recommended that The results of the findings reveal that in secondary schools in Rivers State, the extent of ICT accessibility is only limited to computers either in offices or classes and Computer Room/Lab in the urban area while in Rural area, computers either in offices or classes, Computer Room/Lab, Computer Based Test (CBT) software, presentation software such as power point, and Overhead Projectors are not available in their locality. It further revealed that students in urban area are exposed to ICT in secondary schools in Rivers State for examination purposes, For regular classroom instructions, To learn new things needed to improve their learning skills and knowledge of their subject areas, while in rural area, students in schools are not exposed in all the areas listed in the research item like For examination purposes, For examination purposes, To communicate and share ideas with one another, For regular classroom instructions, Stimulates student's activities in accessing their results. ICT facilities are utilized to a great extent in the urban area in the area of computerized database in exams and records department, The use of photocopy machine, scanners and printers, The use of computer systems for practical's, and The use of e-mail or fax machine to send or receive messages. However they were less

utilized in the rural area in all the areas listed in the research question. Inadequate funding, Poor infrastructure in schools, difficulty in learning new technology, lack of internet connectivity, Fatigue and stress associated with ICT use, Inappropriate maintenance of ICT facilities and services, and Poor Government policies to coordinate proper use of ICT in teaching are the challenges in utilizing ICT in secondary schools in Rivers state both at the urban and rural areas

Contributions to Scholarship

The findings of the study have contributed to knowledge creation in educational administration.

The results of the findings reveal that in secondary schools in Rivers State, the extent of ICT accessibility is only limited to computers either in offices or classes and Computer Room/Lab in the urban area while in Rural area, computers either in offices or classes, Computer Room/Lab, Computer Based Test (CBT) software, presentation software such as power point, and Overhead Projectors are not available in their locality. It further revealed that students in urban area are exposed to ICT in secondary schools in Rivers State for examination purposes, For regular classroom instructions, To learn new things needed to improve their learning skills and knowledge of their subject areas, while in rural area, students in schools are not exposed in all the areas listed in the research item like For examination purposes, For examination purposes, To communicate and share ideas with one another, For regular classroom instructions, Stimulates student's activities in accessing their results.

ICT facilities are utilized to a great extent in the urban area in the area of computerized database in exams and records department, The use of photocopy machine, scanners and printers, The use of computer systems for practical's, and The use of e-mail or fax machine to send or receive messages. However they were less utilized in the rural area in all the areas listed in the research question. Inadequate funding, Poor infrastructure in schools, difficulty in learning new technology, lack of internet connectivity, Fatigue and stress associated with ICT use, Inappropriate maintenance of ICT facilities and services, and Poor Government policies to coordinate proper use of ICT in teaching are the challenges in utilizing ICT in secondary schools in Rivers state both at the urban and rural areas. Again, this study have been able to awoken the consciousness of the School owners to Provide necessary ICT facilities to both the rural and urban area that was used for this study and to give adequate training and retraining to teachers and principals in Public Senior Secondary schools In Secondary Schools in Rivers State.

VII. RECOMMENDATIONS

Based on the findings of this study which have been revealed, the following recommendations were made:

1. School administrators/ School Owners should provide conducive learning environment for the use of ICT in Schools in Rivers State.

2. There should be continuous training and retraining of staff/Administrators to make them capable to utilize the available ICT facilities
3. School administrators/ School Owners should provide enabling environment such as stable power supply for ICT facilities to function properly

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