



Information and Communication Technology (ICT) for Effective Schools Management for Sustainable Educational Development in Rivers State, Nigeria

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ABSTRACT

This study investigated the role of information and communication technology (ICT) for effective schools management for sustainable educational development in Rivers State, Nigeria. The drop in the quality of teaching and learning in our schools nowadays necessitated this study. The study was a descriptive survey. The population of the study comprised of all the 278 senior secondary schools in Rivers State with 6,956 teachers. Out of this population, a sample of 164 senior secondary schools and 378 teachers was taken and selected through the stratified random sampling technique. The 378 teachers in the schools are made up of 164 principals and 214 as were selected for the study. The instrument for data collection was questionnaire which is regarded as primary source while the data collected were analyzed using frequency counts, percentages and Pearson Product Moment Correlation analysis with the aid of Statistical Package for Social Sciences (SPSS) version 23.0. It was found that the level of provision of ICT equipment to senior secondary schools in the State was moderate. The level of principals' management of schools was also moderate. The inadequate power supply and inadequate funding were found as major problem. The findings at 0.05 level of significance also indicate that usage of ICT has a positive and a significant relationship with effective management of schools ($r = 0.668^{**}$). It was concluded that information and communication technology (ICT) has become an indispensable tool in school management and modern society for educational growth. The study therefore, recommend that people should be sensitized on the importance of ICT for schools management and for sustainable educational development. The government of Rivers State should create an enabling environment for ICT to thrive in schools. Finally, there should be training and re - training of students and teachers to enhance the effective usage of ICT facilities.

Keywords: Information and Communication Technology, Management of Schools, Sustainable Educational Development

INTRODUCTION

Information and communication technology (ICT) is critical to any country's growth. The importance of information and communication technology (ICT) in our country today, especially in school management and sustainable educational development, cannot be overstated. According to Carrion –

Martinez, Rosa, Fernedez – Cerero and Montenegro – Rueda (2020), technology is becoming increasingly present in different areas of society, impacting on people's daily lives. Zurich (2013) observed that Information and Communication Technology (ICT) rendered our work more sustainable by conserving energy and materials capital, increasing people's quality of life without jeopardizing future generations' ability to meet their needs, and enhancing people's quality of life with less physical input.

It's also worth noting that the magnitude and degree of socio-economic progress brought about by the implementation of science, technology, and mathematics has a significant effect on a country's growth. According to Bayah and Farmation (2002), as cited in Kadir, Kadir, Yusuf, and Rasheed (2014), sustainable development contributes to the realization of social ideas that are important to the society's needs and aspirations. Kadir, Kadir, Yusuf, and Rasheed (2014), assert that information technology refers to a collection of resources that assist you in working with data and performing tasks relevant to data processing. The word ICT was thought to have originated as information technology until recently, when it was thought that communication should be an integral part of information technology because of its importance and meaning, according to Hang and keen in Nwogu (2007).

Nigeria's educational system is divided into many tiers, including pre-primary, primary, secondary, and tertiary education (FRN, 2004). In order to keep up with the information technologies of the twenty-first century, educational professionals such as curriculum designers, evaluators, and teachers are being placed under more pressure. ICT's potential and function as a tool for development contribution are infinite and well-known. It is believed that information and communication technology (ICT) supports the neural system of a complex society and can help various fields of development, particularly with the global trend of people accessing the internet at an increasing rate (Abobakar 2010 cited in kadir, Kadir, Yusuf and Rasheed, 2014). Various economic policies, such as the National Economic Empowerment and Growth Strategies (NEEDS), the Structural Adjustment Programme (SAP) of 1986, and others, are aimed at ensuring Nigeria's long-term economic development.

It should be noted, however, that not all schools in the country have access to the school Net Nigeria program, which trains students in the use of ICT in secondary schools. This may be due to some limitations in school administration, such as the issue of handling large groups of students and administering exams on a large scale. The fact that the Rivers State government in Nigeria is experiencing a tremendous increase in student enrolment, as well as the outbreak of Covid-19 in Nigeria in 2020, has made school management complex, posing challenges ranging from student and staff management, community relations, instructional supervision, and school finance management. In support of these claims, Okebukola (1996) argued that there has never been a period in Nigerian secondary school education history when principals have faced such a plethora of challenges.

In terms of enrolments, population mobility, and social issues, Ghaemian (1998) and Uys (2000) agreed with Okebukola (1996) and stated that administrative functions in schools are becoming increasingly complex. This complexity necessitates the use of powerful administrative resources that result in improved communication, operational efficiency, and personal service. The machine is one of these instruments. The computer's evolution and ability to address a wide range of problems has made the mounting challenges posed by the State's rapid expansion of high school education much easier to manage. For effective school management in Rivers State, Nigeria, the school principal must be ICT application compliant. This is expected in the areas of budgeting, student data collection, results tracking, and efficient school record keeping, such as the school diary. The machine could be programmed with different types of data. The successful use of ICT in schools may also be used to collect data on teachers, teaching, and learning. The use of ICT in educational management may serve as an antidote to finding successful solutions to educational problems that would have been difficult, if not impossible, to solve by natural means.

Efficient record keeping, according to Nwagwu (1995), is critical to educational growth. Furthermore, he stresses that preparing and managing any institution where records are not maintained, or are kept wrongly and fraudulently, would be difficult. For effective planning and management of schools, instructional planners and administrators need sufficient and reliable data on student enrolment, school personnel (academic and non-academic), and school records.

However, it has been observed that many public secondary schools in Rivers State, Nigeria, lack ICT facilities such as computers, internet access, and other telecommunication technology that can assist teaching and learning. It is against this background therefore, that this study is aimed at examining information and communication technology (ICT) for effective school management for sustainable educational development in Rivers State, Nigeria. In addressing this problem, the following research questions were raised:

- i. What is the level of ICT availability in senior secondary schools in Rivers State?
- ii. What is the level of Principals management in senior secondary school in Rivers State?
- iii. What are the merits of using ICT in effective management of schools in Rivers State?
- iv. What are the challenges to the effective usage of ICT in senior secondary schools in Rivers State?

The hypothesis to be tested is as stated below:

Ho There is no significant relationship between usage of ICT and effective management of schools in Rivers State

Literature Review

Information and Communication Technology (ICT)

The term "information and communication technologies" (ICT) refers to a broad range of technological resources and techniques that are used to create, transfer, store, share, and exchange information. It permeates every part of life, offering individuals more, better, and faster ways to connect, network, ask for assistance, access information, and learn. ICT facilitates the utilization of cutting-edge educational materials and the modernization of teaching techniques, fostering greater student collaboration in group projects and the concurrent learning of technological skills. Many academics have recognized the role of ICT in sustainable development or the effect of ICT on sustainable economic development in Nigeria.

Kadir, Kadir, Yusuf, and Rasheed (2014) investigated the impact of information and communication technology (ICT) implementation on the long-term sustainability of education in selected secondary schools in the Ilorin metropolis. The study relied on primary data gathered through the distribution of questionnaires to thirty (30) teachers and ninety (90) students from six secondary schools in the metropolis. The study relied on primary data gathered through the distribution of questionnaires to thirty (30) teachers and ninety (90) students from six secondary schools in the metropolis. The study's data was analyzed using descriptive statistics and the chi-square test. Information and communication technology (ICT) has aided in the advancement of education in the study field, according to the findings. The results also show that the students' respondents have built a positive attitude about using ICT to learn new skills.

Adeyemi and Olaleye (2010) looked into the use of information, communication, and technology (ICT) for successful secondary school management in Ekiti State, Nigeria. The research was carried out as a descriptive survey. Both 182 secondary schools in the state were included in the report. A sample of 160 secondary schools was chosen from this population using the stratified random sampling technique. A total of 812 teachers, including 160 principals and 652 teachers, were chosen for the study out of a total of 6, 278 teachers in the schools. The stratified random sampling technique was used to pick the participants. A questionnaire was used to gather data for the study, and the data was analyzed using frequency counts, percentages, and Pearson Product Moment Correlation analysis. The supply of ICT equipment to secondary schools in the state was found to be inadequate. The management of schools by principals was also bad. Intermittent power outages and a shortage of funding have been described as significant roadblocks to the use of ICT equipment for school management in the state. The conclusion was that the state government was not completely prepared to implement (ICT) for successful secondary school management.

The importance of information and communication technology for sustainable development is examined by Anyasi, et al (2012). To collect relevant information from the respondents, the author used both primary and secondary data. To extract information from the respondents, a structural questionnaire was used. The findings show that information and communication technology is a critical tool for Nigeria's long-term growth.

Major (2013) investigated the role of information and communication technology (ICT) in improving quality assurance procedures in Nigerian universities. The literature review approach was used in his studies. The study concluded that, when used correctly, ICT facilities have the ability to strengthen university quality assurance procedures. The research also discovered that ICT devices, such as computers, mobile devices, and internet technology, ensure the basic quality assurance protocol in accordance with the Minimum Academic Standard (MAS).

Abobakar (2010) looked at the direct effects of ICT as well as the steps taken by the ICT industry and science to minimize the impact of ICT in the future. The paper concluded that information and communication technology (ICT) has a huge effect on reducing carbon footprint in other sectors, far outweighing the first argument. According to the report, ICT's effect on other fields will result in emissions reductions five times the size of ICT's own footprint. Sukanta (2002) examines the importance of ICT in higher education for the twenty-first century in a related article. The study looks at the fields of higher education, science, and teaching where ICT has had a positive impact.

In comparison, Ogunwale et al (2010) conducted a study in Irewolede LGA in Ikire Osun State to assess the degree of perception, acquisition, and utilization of ICT wonders. Fifty teachers were chosen for the study using a simple random sampling method. The authors have used a questionnaire to collect information. The study's results showed that ICT was woefully insufficient in all of the high schools surveyed. ICT, according to Sukanta (2012), is a diverse array of technical devices and tools used for communication. They're also used to develop, disseminate, store, and administer data. Similarly, Yusuf (2007) defines information and communication technology as an electronic technology that is used for accessing, analyzing, gathering, and manipulating information, as well as presenting and communicating it.

METHODOLOGY

This study is designed to investigate the role of information and communication technology for effective schools management for sustainable educational development in Rivers State, Nigeria. The population of the study was 278 Senior Secondary Schools in Rivers State, Nigeria, with a total of 6,956 teachers. The study used a survey research design. A total of 164 Senior Secondary Schools were chosen from the population using a stratified random sampling method, with 378 teachers out of 6,956 teachers in the schools. See table 1 for the analysis of the response of the sample respondents. The 378 teachers are made up of 164 principals and 214 teachers as respondents for the study. Primary data was used to carry out this study. A questionnaire titled "Information and Communication Technology and Effective Management of Senior Secondary Schools questionnaire" was used to collect data for the study. The survey was divided into two parts, A and B. Part A dealt with demographics. It elicited information on the schools' personal data, such as the name of the school, its location, and the number of teachers by gender. Part B was divided into five parts with twenty-three items. Section A elicited information on the level of availability of ICT facilities to senior secondary schools in Rivers State. Section B requested information on the level of principal's management of the schools. Section C requested information on the perceived merits of utilizing ICT in effective school management, Section D required information on the challenges to the effective utilization of ICT in senior secondary schools in Rivers State while, Section E elicited information on the relationship between the utilization of ICT and effective school management.

Table 1. Analysis of the Response of the Sample Respondents

Number of Questionnaires sent	378	
Ineligible Respondents	30	
Eligible Respondents	348	
Positive responses	328	94.3%
No Responses	20	<u>5.7%</u>
		100.0
Total responses to total possible responses	86.8%	
No responses to total possible	13.2%	

- Ineligible Respondents** Include those eliminated through stratified sampling to ensure fair representation of senior secondary schools in Rivers State.
- Eligible Respondents** Were drawn from the senior secondary schools with significant operational presence in Rivers State, Nigeria and these, with their respective teachers' respondents in bracket (164 schools with 2 respondents each).

RESULTS

To investigate the relationship between information and communication technology and effective school management for sustainable educational development, Pearson Product Moment Correlation Coefficient analytical technique was used and facilitated by Statistical Package for Social Sciences (SPSS) version 23.0. Table 1 shows that out of 348 copies of questionnaire distributed, 328 copies (representing 94.3%) were correctly filled and returned; while 20 copies (representing 5.7%) were not returned. The 328 copies of questionnaire returned hence, form the basis of subsequent data inputs.

Table 2: The Level of ICT Availability in Senior Secondary Schools in Rivers State

Facilities	N	Available	%	Not Available	%
Computers	164	150	91.5%	14	8.5%
Internets Services	164	145	88.4%	19	11.6%
Printer	164	135	82.3%	29	17.7%
Projector	164	5	3.0%	159	97%
Projector Screen	164	5	3.0%	159	97%
Photocopying Machine	164	138	84.1%	26	15.9%
Scanning Machine	164	2	1.2%	162	98.8%
Satellite Ditch	164	67	40.85%	97	3%

Table 2 shows that many schools in the State are deficient in the availability of information communication and technology (ICT) equipment. Although 150 (91.5%) schools have computers, 145 (88.4%) have internet services, 135 (82.3%) have printers, 138 (84.1%) have photocopying machine, 67 (40.85%) have satellite ditch. This is an indication that ICT materials are not vigorously available in the schools.

Table 3: Level of Principal's Management in Senior Secondary Schools in Rivers State

Variables	N	High	%	Moderate	%	Low	%
Effective Leadership	214	70	33%	110	51%	34	16%
Effective Supervision	214	60	28%	95	44%	59	28%
Effective Duty Delegation	214	50	23%	120	56%	44	21%
Effective Disciplinary Ability	214	45	21%	80	37%	89	42%
Effective Motivation	214	30	14%	65	30%	119	56%
Effective Communication	214	35	16%	50	23%	129	60%
Average Total	214	48	23%	87	40%	79	37%

Table 3 shows that principal's level of management in senior secondary schools in Rivers State was moderate. This is evident in the fact that 87 (40%) respondents on average reported that the level of principal's management is moderate with all parameters examined. Out of the variable examined, effective communication had the lowest level of effective management. This is evident in the large number of respondents 129 (60%) who claimed that the principals level of management in terms of effective communication was low. Communication is one of the essentials tools of information and communication technology (ICT), a situation whereby 129 (60%) out of 214 respondents gave a low level response in terms of effective communication, shows that information and communication technology (ICT) has not been fully developed in senior secondary schools in Rivers State. Though, there are other parameters in the table that the respondents gave moderate or high response in term of principal's level of management.

Table 4: Merits of using ICT in Senior Secondary Schools in Rivers State

Variables	N	Agree	%	Disagree	%
It will aid teaching and learning	378	378	100%	00	0%
It will lead to effective school management	378	280	74%	98	26%
The teachers will be more productive	378	300	79%	78	21%
Exposure to current information	378	330	87%	48	13%

Table 4 shows that 378(100%) respondents agreed that the usage of ICT will aid teaching and learning amongst teachers and students. 280 (74%) respondents agreed that ICT will lead to effective school management while 98 (26%) disagreed. 300 (79%) of the respondents agreed that ICT will make the teachers more productive while 78 (21%) disagreed. Finally, 330 (87%) of the respondents agreed that ICT will expose both teachers and students to current information while 48(13%) disagreed. On average, the respondents agreed that the merits of using ICT are quite enormous and cannot be over emphasized.

Table 5: Challenges to effective use of ICT in Senior Secondary Schools in Rivers State

Variables	N	Agree	%	Disagree	%
Inadequate power supply	378	378	100%	00	0%
Lack of class room facilities for ICT equipment	378	350	93%	28	7%
Inadequate funding to provide ICT equipment	378	328	87%	50	13%
Lack of interest in the use of ICT facilities	378	30	8%	348	92%

Table 5 shows that 378(100%) respondents agreed that inadequate power supply limited the effective use of ICT. 350 (93%) respondents agreed that lack of class room facilities was also a challenge in the effective use of ICT while 28 (7%) disagreed. 328 (87%) of the respondents agreed that inadequate funding was a challenge in the provision of ICT equipment while 50 (13%) disagreed. Finally, 348 (92%) of the respondents disagreed that lack of interest in the use of ICT was a challenge while 30(8%) agreed. On average, the respondents agreed that the problems highlighted limited the effective use of ICT in senior secondary schools in Rivers State.

The range/levels of association as well as analytical extent and direction of relationship are presented in Tables 7:

Table 6: Relationship/ Descriptive Levels of Relationship

Range of r values	Descriptive Level of r
±0.80 – 1.00	Very strong
±0.60 – 0.79	Strong
±0.40 – 0.59	Moderate
±0.20 – 0.39	Weak
±0.00 – 0.19	Very weak

Table 7: Correlation Analysis on the Extent and Direction of the Relationship between Usage of ICT and Effective Management of School

Description	Usage of ICT	Effective Management of School
Usage of ICT	Pearson Correlation	1
	Sig. (2-tailed)	.668**
	N	378
Effective management of School	Pearson Correlation	1
	Sig. (2-tailed)	.668**
	N	378

** . Correlation is significant at the 0.01 level (2-tailed).

Table 7 above shows a correlation coefficient of $r = 0.668$ with a corresponding probability value of 0.000. From the classification of r values in Table 6, the relationship between usage of ICT and effective management of school is strong. Furthermore, as the probability value is less than the level of significance (0.05), the null hypothesis is rejected, affirming that there is significant relationship between usage of ICT and effective management of school.

DISCUSSION OF FINDINGS

The test of hypotheses was carried out using primary data obtained from the respondents and the extent and direction of the relationship between the usage of information and communication technology (ICT) and the effective management of senior secondary schools in Rivers State were determined. Thus it is important to discuss the findings and relate them to the conceptual review.

On the test of hypotheses, it was found that there is a positive significant relationship between the usage of information and communication technology (ICT) and the effective management of senior secondary schools. The analysis in table 7 showed the correlation coefficient of $r = 0.668^{**}$ significant at $p_v = 0.000 < 0.05$. Hence the conclusion that there is a significant relationship between the usage of information and communication technology (ICT) and the effective management of senior secondary schools in Rivers State. The implication of this finding is that an improvement in the effective management of senior secondary schools in Rivers State is associated with the provision and usage of ICT facilities. This position is in line with the study of Adeyemi and Olaleye (2010), who studied information communication and technology (ICT) for effective schools management for sustainable educational development in Ekiti State, Nigeria and Kadir, Kadir, Yusuf & Rasheed (2014) who studied role of ICT in enhancing a sustainable educational development in selected secondary schools in Ilorin metropolis and found that ICT play a major role in effective school management for educational development.

CONCLUSION AND RECOMMENDATIONS

The study examined the impact of ICT for effective schools management for sustainable educational development in Rivers State, Nigeria. The study's results and the literature indicate that information and communication technology (ICT) has become an indispensable tool in school administration and modern society for educational growth. The integration of ICT into the educational system has aided in the removal of restrictions, allowing scientific expertise to be applied to social aspirations and objectives. As a result, the study conclude that information and communication technology (ICT) is a viable tool for fostering sustainable educational development in Rivers State, Nigeria. Therefore the following recommendations are made:

1. People should be sensitized on the importance of information and communication technology (ICT) for schools management and for sustainable educational development.
2. The government of Rivers State should create an enabling environment for ICT to thrive in senior secondary schools in the State.
3. There should also be public-private partnership in information and communication technology for efficiency and effective utilization of both the hardware and software.
4. There should be training and re - training of students and teachers to enhance the effective usage of ICT facilities.

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