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Application of ICT for Quality Secondary School Education Delivery in Rivers State

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Abstract: ***This study investigated the application of ICT for quality secondary school education delivery in River State. To address the issue raised therein, seven (7) research questions were raised and seven (7) null hypotheses formulated. A sample size of one hundred and eighteen (118) which represents 50% was drawn from the total population of two hundred and thirty six (236) secondary schools using simple random sampling technique, while out of a total population of hundred and fifty (350) respondents: 150 principals and 200 teachers responded to a validated 36 item questionnaire titled questionnaire for Application of Information and Communication Technology for Quality secondary school Education Delivery (QAICTQSED). The responses were correlated and analysed using the Pearson Product Moment Correlation Co-efficient to establish the reliability co- efficient of 0.90. The study adopted descriptive survey design and Technology acceptance model theory. For the analysis of data mean (x) was used to answer the research questions, while Z-test was used for the testing of hypotheses of no significant difference. The findings from the analysis revealed that ICT application for the delivery of quality secondary school education to a minimal extent has been achieved. This study recommends that teachers in secondary schools should be armed with appropriate and requisite skills in ICT so as to be able to impact these skills in the students and especially help in trouble-shooting ICT related problems. Educational managers should ensure that students are provided with practical and functional knowledge of computers, the internet and associated areas of ICT. Adequate funds should be allocated and disbursed to public secondary schools for proper financing and maintenance of ICT appliances. This study has provided an empirical basis for problem solving on the application of ICT for quality secondary school education delivery in River State among others.***

Keywords: Quality secondary school education, ICT, Application, Educational managers, delivery.

I. INTRODUCTION

The increasing development of the educational sub-system at the secondary school level brings greater demands on educational practitioners such as school administrators, teachers as well as students, in the bid to keep pace with the information technology of the 21st century. As information and knowledge develops, teaching and learning processes also change which includes the management of schools. The use of information communication and technology (ICT) can improve the quality of education, expand learning opportunities and make education more accessible.

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Therefore, the integration of ICT into education in Nigeria becomes very necessary. Technology Acceptance Model (TAM) is based on the Theory of Reasoned Action (TRA) and it is related to other theories such as the theory of planned behaviour. TAM explains ICT usage behaviour; what causes users to accept or reject the use of a technology and how user acceptance is affected by system characteristics. In TAM, two theoretical constructs exist. They are perceived usefulness and perceived ease of use. Perceived usefulness is the "degree to which a person believes using a particular system would enhance his or her job performance", while perceived ease refers to "the degree to which a person believes that using a particular system would be free of effort".

[1] Considers education quality at its' broadest level to be a set of elements that constitute the input, process and output of the education systems which provides services that completely satisfy both internal and external strategic constituencies by meeting their explicit and implicit expectations. In line with the federal governments' introduction of the new school curriculum which includes subjects such as Information Technology, Wood Work, Craft Art and more, which in a sense should guarantee development, self-employment and professionalism among secondary school leavers in the nearest future.

[2] Believes that ICT should be present in every classroom, library and teaching room, noting that advance countries like the united kingdom are making huge investments by providing usable computers in Secondary Schools with an estimate of about 90% students access to computer in Canada, Finland, and New Zealand. [3] on the implication of ICT and a new kind of science revealed that the awareness and use of ICT amongst teachers and students of Secondary Schools in Nigeria is less than 10% thereby hampering the effective administration of science education. [4] has identified the use of ICTs as improving the quality of education within the formal school framework in the area of better cooperation between students, preparing them for a society that values term work, making learning more student cantered as having effect on student in all subjects, creating a positive effect on student attitudes towards learning and on their self conception. ICT has the potentials to accelerate, enrich and deepen skill; motivate and engage students in learning to help relate school experiences to work practices; to help create economic viability for tomorrow's workers, to strengthen teaching and to provide opportunities for connection between the school and the world. In addition, the use of ICT can improve education quality, expand learning opportunities and make education accessible [5].

Quality education is considered to be interdependent with the integral development of economy, sciences, technology and culture where ICTs play a fractional role. Thus, the unique role of information and communication technologies in improving education quality is based on their ability to facilitate necessary and sufficient conditions effectively to receive quality education; by broadening the students and teachers opportunities to gain access to educational and professional information among other things [6].

The society greatly relies on secondary school education to prepare young people for higher education and to provide knowledge and skills necessary for agricultural, industrial, commercial and economic development. The sudden increase in knowledge has made the society more dynamic that individuals need to continually develop themselves. Therefore, secondary schools and educational institutions at various levels are continuously reorganized to accept and deal with these challenges. For this reason, managers of secondary schools are faced with the difficult task of promoting better learning and teaching across the curriculum, making the school more manageable, assuring quality in education and enhancing the development of teachers. Numerous strategies have been developed to enhance secondary education and one of such strategies involves the use of information and communication technology (ICT). The application of ICT has greatly enhanced globalization and increased efficiency in work places. Thus, educational organizations must adapt to the use of modern communication technologies as a catalyst or stimulus for educational development. However, it has been observed that ICT facilities might not have been utilized effectively in secondary schools within the state. This could be an explanation to the inability of young secondary school levers to efficiently use the computer system and the increasing paper work done by teachers and administrators, which could have been conveniently and effectively done using modern information and communication technological gadgets. The problem of this study can be summed up with this question: To what extent is ICT applied to ensure quality Secondary School Education Delivery in Rivers State?

The main purpose is to examine the level of capacity of using ICT facilities for the delivery of quality secondary school education in Rivers State. In specific terms, this work intended:

1. To find out how much of ICT is used for quality teaching to enhance the learning ability of students in secondary schools in Rivers State.
2. Ascertain the extent to which principals use ICT to enhance the quality of their administrative role of planning in secondary schools in Rivers State.
3. Determine the benefits of ICT in secondary schools in Rivers State.
4. Determine the level of participation of the government in providing ICT facilities in effective administration of secondary schools in Rivers State.
5. To find out the constraints to the effective utilization of ICT facilities in secondary school administration in Rivers State.
6. Determine how the non-application of ICT techniques by teachers affect students' academic achievement in secondary schools in Rivers State?
7. Determine the extent to which the application of ICT in teaching enhance students rate of academic performance in Rivers state secondary schools?

II. RESEARCH HYPOTHESIS

In addressing the problem the following research hypothesis were posed:

1. There is no significant difference between the mean ratings of male and female teachers on the extent to which the application of ICT for quality teaching enhances the learning ability of students in Rivers state secondary schools?
2. There is no significant difference between the mean ratings of male and female principals in the extent to which ICT is used for quality administrative role of planning in Secondary Schools in Rivers State.
3. There is no significant relationship in the mean ratings of teachers benefiting in the use of ICT between rural and urban secondary schools in Rivers State.
4. There is no significant difference between the mean ratings of principals and teachers in the extent to which government participates in the provision of ICT facilities for effective administration of secondary schools in Rivers State.
5. There is no significant difference in the mean ratings of male and female principals in the constraints to the effective utilization of ICT facilities in the administration of secondary schools in Rivers State.
6. There is no significant difference between the mean ratings of male and female teachers in the extent to which the non-application of ICT techniques affect student's academic achievement in Rivers State secondary schools.

III. CONCEPTUAL FRAMEWORK

3.1 The concept of quality secondary school education delivery:

Quality is the characteristics of something which contain its essential identifying nature or character [7]. In other words, it is the original standard stipulated and expected of something. As laudable as the goals of secondary education is, the fact remains that provision of adequate facilities which includes equipped computer science laboratory in schools, is paramount for its attainment. [8] states that learning is more effective if the learner is exposed to a variety of experiences which are organized around specific objectives known to students.

3.2. The concept of information and communications technology (ICT) in education

Information Communication Technology (ICT) refers to the computer and internet connections used to handle and communicate information for learning purpose [2].

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Assert that computer based instruction offers teachers and instructional designers a powerful tool for sustaining knowledge retention and transfer in students over traditional classroom delivery methods. He further stated that sound, video, animation and other multimedia features appeal to multiple learning styles and capture the learner's attention. Thus, wondering why schools, universities and private industry are still reluctant to embrace the technology. [9]. by [10] it was agreed that the introduction of ICT into schools has had an impact on teachers in terms of their overall workload, including planning, lesson preparation and the administrative functions of their role, as well as on the ways in which these are coordinated and managed within the school and wider educational context.

3.3. The use of ICT in enhancing the learning ability of students in secondary schools

The use of ICT in and outside the classroom to deliver instructions can make the students become more involved in learning especially as they can view topics taught on the computer or internet, they are also able to get more sources explaining the concepts under study in order to get a better understanding. These experiences become a very useful tool in the short and long term memory of the child because of the variety involved in learning. For as [11] rightly puts, the reason why some people learn and remember more than others, lies partly in how the information is processed. Thus, teaching strategies that encourage student engagement such as elaborated feedback and active involvement in learning projects are associated with longer retention.

3.4. The extent to which principals use ICT to enhance the quality of their administrative role of planning in secondary schools

The principal at the institutional level is involved in the task of micro-level planning; in the area of curriculum planning, facilities planning and time tabling. Educational planning includes defining of purpose which leads to data collection on the various conditions that may affect the achievement of the purposes [12]. Planning is very significant within the secondary school system as [5] rightly puts that, ICT equipment and facilities are indispensable for the effective management of secondary schools. Educational planning according to [13] is a rational and scientific process by which a given society directs its future actions in the field of education, with a view to optimizing available resources used in the pursuit of desirable educational goals.

3.5 Benefits of ICT in secondary schools Most

experts in the field of education believe that, information and communication technology hold great promise to improve teaching and learning in addition to shaping workforce opportunities . Proponents of this includes [14] who state that ICT is an instrument for the economic and technological development in the 21st century, for which reason Nigeria cannot afford to be on the wrong side of the digital divide. The importance and usefulness of ICT-driven instructional aids in teaching and learning according to [15] are summarized as follows:

1. Stimulation of students' interest in the teaching-learning process;
2. Concretizes abstract issues or topics in the teaching and learning process, thereby making learning real, practical and more permanent to the learners;
3. Creating of effective communication;
4. Used for mass instruction and taking care of a wide audience;
5. Providing meaning and useful sources of information to teachers and learners;
6. It helps in developing a continuity of reasoning and coherence of thought;
7. It is used to improve teaching methods;
8. Promotes closer relations between the community and school;

Gleaned from the above, one can clearly affirm that the field of education has been affected by Information Communication Technology, which has undoubtedly affected teaching, learning, and research.

3.6. Participation of government in the provision of ICT facilities for effective administration in secondary school in Rivers State

The implementation of any program in education must be backed with adequate planning put in place. Thus, it becomes imperative to identify what education managers might do with the use of ICT in achieving improved educational outcomes. In order to husband the potentials of ICT, most nations of the world have evolved national information and communication technology policies, to serve as a framework for ICT integration in all facets of the society. African countries, and particularly Nigeria, are not exceptions to this practice. The digital divide between advanced and developing countries, particularly in Africa, is well established. Like most African countries, Nigeria as a nation, came late and slowly in the use of ICT in all sectors of the nation's life [15].

3.7 Constraints to the effective utilization of ICT facilities in secondary schools in Rivers State:

The benefits of ICT in Secondary Schools are admirable no doubt however, studies show that there are still many secondary school teachers who do not use ICT at all [16] in [2] According to an international study reported by [17] in [2] the challenge in ICT usage arises as a hurdle of integrating computers and internet into classroom practice, coupled with teachers' lack of confidence and enthusiasm to use computers for instruction. The study however suggests an integrating of ICT in teachers training and staff development workshops with teacher motivation schemes, as some measures that could be adopted to improve and make optimal use of ICT in schools.

3.8 The effect of non-application of ICT techniques by teachers and the academic performance of students in secondary schools

Today's world is a world of information explosion. This information explosion is taking place in such a fast speed that even a literate person is feeling as if he or she is illiterate not being able to cope up with such an information increase.

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Hence the question arises; how is one to cope up with it? The answer is, information technology (IT) which can help in coping with the dramatic increase of information [18]. Thus, in this modern era where a huge amount of information is carried and transmitted through the use of technology, one can say that an absence of ICT in the teaching and learning process may be confining the students and teachers to the traditional classroom; a closed system where information is filtered through layers to students, where the use of resources is limited to what is available in the classroom or within the school and Use of technology is focused on learning about the technology rather than its application to enhance learning

3.9 The application of ICT in teaching and academic performance of students in Secondary Schools.

The adoption and use of ICT-driven instructional aids in schools have a positive impact on teaching and learning, it can make the school more efficient and productive, thereby engendering a variety of tools to enhance and facilitate teachers' professional activities, and help the learners on providing integrated experiences. Since students are exposed to the real nature of those concept or body of knowledge they tend to analyses and synthesis those body of knowledge for the proper application in their daily lives. If the learners' interest is build properly, learning can take place effectively as ICT-driven instructional aids have the potentials for regulating the pace of information flow among different class of learners under the same classroom. ICT-driven instructional aids addresses individual differences. It helps in perception and retention of information or knowledge in learners [15].

IV. METHOD OF DATA ANALYSIS

The analysis of data was done using both inferential and descriptive statistical techniques. The mean ($\overline{X}$) was used to answer the research questions. As a result any mean that ranged from 2.5 and above was regarded as high extend while those below 2.5 were regarded as low extent. In other to analyse data collected for the study, the seven hypotheses were stated using using z-test at 0.05 level of significance at 568 degree of freedom. freedom also with a sample size of 20 above. The z-test was most preferred because it is used for descriptive analysis. Pearson Product Moment Correlation Co-officient was used to establish the reliability index of the instrument at 0.90. 2.50 was cited as mean($\overline{X}$) set. Mean score of 2.50 and above was accepted while mean score below 2.50 was rejected. The following indicate the scales used

± 4 = VHE/SA

± 3 = HE/A

± 2 = LE/D

± 1 = VLE/SD

V. DATA PRESENTATION AND ANALYSIS

Research Question 1: To what extent does the application of ICT for quality teaching enhance the learning ability of students in Rivers state X secondary schools?

Table 2: Mean Analysis on the extent the application of ICT for quality teaching enhances the learning ability of students in Rivers State.

S/N		Male Teachers		Female Teachers			
		N	$\overline{X}$	N	$\overline{X}$	$\overline{X}\overline{X}$	Rank
1.	Teachers are exposed to the use of ICT for quality teaching	80	2.53	120	2.76	2.53	5th
2.	Lesson notes are prepared with the use of ICT facilities	80	2.66	120	2.70	2.52	6th
3.	Students are knowledgeable in the use of ICT	80	2.58	120	2.66	2.59	4th
4.	Teachers undergo ICT training from time to time to enhance performance	80	2.77	120	2.76	2.67	2nd
5.	Teachers are ICT friendly	80	2.71	120	2.55	2.77	1st
6.	Teachers respond positively to the adoption of new ICT facilities	80	2.61	120	2.68	2.64	3rd

From table 2 above, the calculated mean scores are 2.77, 2.52, 2.53, 2.67, 2.59 and 2.64 for all items. The means are higher than the criterion mean of 2.5. This indicated that all the identified items are factors on the extent for which application of ICT for quality teaching enhances the learning ability of students in Rivers State. Teachers' exposure to ICT enhances quality teaching, lesson notes are prepared with ICT facilities, students possess ICT knowledge, training and retraining of teachers on ICT so as to enhance performance, teachers are ICT friendly and teachers respond positively to new ICT facilities. In all, teachers are ICT friendly as a factor for the application of ICT in enhancing the learning ability of students in Rivers State ranks first of all the factors.

Research Question 2: What is the extent to which principals adopt the use of ICT to enhance the quality of their administrative role of planning in secondary schools in Rivers State?

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Table 3: Mean (X) analysis on the extent to which principals adopt the use of ICT to enhance the quality of their administrative role of planning in secondary schools in Rivers State

S/N		Male principals		Female Principals			
		N	$\bar{X}$	N	$\bar{X}$	$\bar{X}\bar{X}$	Rank
7.	Principals are ICT friendly	130	2.61	20	2.58	2.59	4th
8.	Principals adopt the use of ICT for collecting data for planning	130	2.55	20	2.84	2.69	2nd
9.	ICT is used in facilitating decision making in the school	130	2.74	20	2.51	2.63	3rd
10.	ICT is used in budget planning	130	2.39	20	2.73	2.56	5th
11	There are efforts by principals in improving the use of ICT for planning within the school	130	3.79	20	2.58	3.19	1st

From table 3 above, the calculated mean scores are 3.19, 2.69, 2.63, 2.59 and 2.56 for all items. The means are higher than the criterion mean of 2.5. This indicated that all the identified items are factors on the extent to which principals adopt the use of ICT to enhance the quality of their administrative role of planning in secondary schools in Rivers State. ICT is used in facilitating decision making in the school, Principals adopt the use of ICT for collecting data for planning, ICT is used in budget planning, Principals are ICT friendly and there are efforts by principals in improving the use of ICT for planning within the school. In all, there are efforts by principals in improving the use of ICT for planning within the school ranks first of all the factors.

Research Question 3: What are the benefits of ICT in secondary schools in Rivers State?

Table 4: Mean (X) analysis on the benefits of ICT in secondary schools

S/N		Rural		Urban			
		N	$\bar{X}$	N	$\bar{X}$	$\bar{X}\bar{X}$	Rank
12.	The school benefits from the use of ICT in the improvement of academic standards to a high extent	80	2.77	120	2.26	2.52	5th
13.	It makes teaching and learning more interesting	80	2.77	120	2.83	2.80	1st
14.	It facilitates the teacher's and principal's functions	80	2.54	120	2.54	2.54	4th
15.	It promotes easy access to current information	80	2.66	120	2.51	2.59	3rd
16.	It makes teachers to be up-to-date in their various disciplines	80	2.62	120	2.74	2.68	2nd

From table 4 above, the calculated mean scores are 2.80, 2.68, 2.59, 2.54 and 2.52 for all items. The means are higher than the criterion mean of 2.5. This indicated that the entire identified items are factors on the benefits of ICT in secondary schools in Rivers State. It makes teaching and learning more interesting, it promotes easy access to current information, it makes teachers to be up-to-date in their various disciplines, it facilitates the teacher's and principal's functions and the school benefits from the use of ICT in the improvement of academic standards to a high extent. In all, ICT It makes teaching and learning more interesting ranks first of all the factors.

Research Question 4: To what extent does the government participate in the provision of ICT facilities for effective administration of secondary schools in River State?

Table 5: Mean (X) analysis on the government participate in the provision of ICT facilities in effective administration of secondary schools

S/N		PRINCIPALS		TEACHERS			
		N	$\bar{X}$	N	$\bar{X}$	$\bar{X}\bar{X}$	Rank
17.	Periodic training is organized for teachers on the use of ICT	150	2.56	200	2.7	2.63	3rd
18.	Practical training is organized for principals on the use of ICT	150	2.60	200	2.87	2.74	2nd
19.	Government effort in deploying more ICT facilities and personnel is encouraging	150	2.69	200	2.78	2.74	1st
20.	Government meets up with secondary school needs on ICT	150	2.59	200	2.61	2.60	4th

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21.	Government respond adequately to ICT matters and maintenance	150	2.65	200	2.53	2.55	5th

From table 5 above, the calculated mean scores are 2.74, 2.74, 2.63, 2.60 and 2.55 for all items. The means are higher than the criterion mean of 2.5. This indicated that the entire identified items are factors on the extent to which government participate in the provision of ICT facilities for effective administration of secondary schools in River State. Practical training is organized for principals on the use of ICT, government meets up with secondary school needs on ICT, government effort in deploying more ICT facilities and personnel is encouraging, periodic training is organized for teachers on the use of ICT and Government respond adequately to ICT matters and maintenance. In all, Government effort in deploying more ICT facilities and personnel is encouraging ranks first of all the factors.

Research Question 5: What are the constraints to the effective utilization of ICT facilities in the administration of secondary schools in Rivers state?

Table 6: Mean (X) analysis on the constraints to the effective utilization of ICT facilities in the administration of secondary schools.

S/N		PRINCIPALS		TEACHERS			
		N	$\bar{X}$	N	$\bar{X}$	$\bar{X}\bar{X}$	Rank
22.	There are inadequate facilities to support full application of ICT	150	3.13	200	2.91	3.02	1st
23.	Teachers are very reluctant to adapt to use of ICT in teaching-learning process	150	2.91	200	2.77	2.84	2nd
24.	Irregular power supply hinders the use of computer in schools	150	2.72	200	2.65	2.69	4th
25.	There is a lack of computer literate teachers/ instructors	150	2.83	200	2.72	2.78	3rd
26.	Funds are not available for the growth of ICT in secondary schools	150	2.55	200	2.54	2.55	5th

From table 6 above, the calculated mean scores are 3.02, 2.84, 2.78, 2.69 and 2.55 for all items. The means are higher than the criterion mean of 2.5. This indicated that the entire identified items are factors on the constraints to the effective utilization of ICT facilities in the administration of secondary schools in Rivers state. There are inadequate facilities to support full application of ICT, irregular power supply hinders the use of computer in schools, teachers are very reluctant to adapt to use of ICT in teaching-learning process, there is a lack of computer literate teachers/ instructors and funds are not available for the growth of ICT in secondary schools. In all, There are inadequate facilities to support full application of ICT ranks first of all the factors.

Research Question 6: To what extent does the non-application of ICT techniques by teachers affect students' academic achievement in secondary schools in Rivers State?

Table 7: Mean (X) analysis on the non-application of ICT techniques by teachers affects students' academic achievement in secondary schools.

S/N		Male Teachers		Female Teachers			
		N	$\bar{X}$	N	$\bar{X}$	$\bar{X}\bar{X}$	Rank
27.	There is need for good ICT techniques	80	2.77	120	2.91	2.84	1st
28.	Upgrade on ICT techniques are necessary in teaching	80	2.77	120	2.91	2.84	1st
29.	Students academic achievement increases with the use of ICT based techniques in teaching	80	2.83	120	2.72	2.78	3rd
30.	Students academic achievement are limited with non-application of ICT techniques in teaching	80	2.76	120	2.68	2.72	4th
31.	Students academic achievement remain the same whether ICT techniques are used in teaching or not	80	2.71	120	2.65	2.68	5th

From table 7 above, the calculated mean scores are 2.84, 2.81, 2.78, 2.72 and 2.68 for all items. The means are higher than the criterion mean of 2.5. This indicated that the entire identified items are factors on the non-application of ICT techniques by teachers affect students' academic achievement in secondary schools in Rivers State. Students academic achievement remain the same whether ICT techniques are used in teaching or not, There is need for good ICT techniques, Upgrade on ICT techniques are necessary in teaching, Students academic achievement increases with the use of ICT based techniques in teaching and Students academic achievement are limited with non-application of ICT techniques in teaching. In all, Upgrade on ICT techniques are necessary in teaching ranks first of all the factors.

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Research Question 7: To what extent does the application of ICT in teaching enhance students' rate of academic performance in Rivers state secondary school?

Table 8: Mean (X) analysis on the application of ICT in teaching enhance students' rate of academic performance in Rivers state secondary school.

S/N		Male Teachers		Female Teachers			
		N	$\bar{X}$	N	$\bar{X}$	$\bar{X}\bar{X}$	Rank
32.	Teachers deliver their lessons more effectively with the use of ICT	80	2.55	120	2.55	2.55	5th
33.	Students do better academically with exposure to ICT based lessons	80	2.61	120	2.59	2.60	3rd
34.	ICT enhances quality of work for both teachers and students	80	2.78	120	2.69	2.74	2nd
35.	ICT based delivery of instruction exposes the students to more knowledge in different subjects than non based delivery	80	2.82	120	2.71	2.77	1st
36.	ICT compliant teachers are more innovative in their style of lesson delivery	80	2.60	120	2.58	2.59	4th

From table 8 above, the calculated mean scores are 2.77, 2.74, 2.60, 2.59 and 2.55 for all items. The means are higher than the criterion mean of 2.5. This indicated that the entire identified items are factors on the application of ICT in teaching enhance students' rate of academic performance in Rivers state secondary school. ICT compliant teachers are more innovative in their style of lesson delivery, ICT based delivery of instruction exposes the students to more knowledge in different subjects than non based delivery, teachers deliver their lessons more effectively with the use of ICT, ICT enhances quality of work for both teachers and students and Students do better academically with exposure to ICT based lessons. In all, ICT based delivery of instruction exposes the students to more knowledge in different subjects than non based delivery rank first of all the factors.

VI. SUMMARY

This work is because ICT has the potential to improve quality of education, expand learning opportunities and make education more accessible .Therefore the integration of ICT into education in Nigeria becomes very necessary. **Extent to which the application of ICT for quality teaching enhances the learning ability of students in Rivers State secondary schools:** the work show that the extent to which the application of ICT for quality teaching enhances the learning ability of students in Rivers State Secondary Schools include; Teachers' exposure to ICT enhances quality teaching, lesson notes are prepared with ICT facilities, students possess ICT knowledge, training and retraining of teachers on ICT so as to enhance performance, teachers are ICT friendly and teachers respond positively to new ICT facilities. The respondents were convinced that the presence of the above outlined factors were crucial for understanding the extent to which the application of ICT for quality teaching enhances the learning ability of students in Rivers State Secondary Schools.

Extent to which principals adopt the use of ICT to enhance the quality of their administrative role of planning in secondary schools in Rivers State: the work show that respondents agreed that the extent to which principals adopt the use of ICT to enhance the quality of their administrative role of planning in Secondary School in Rivers State include using ICT to facilitate decision making in the school, Principals adopt the use of ICT for collecting data for planning, ICT is used in budget planning, Principals are ICT friendly and there are efforts by principals in improving the use of ICT for planning within the school. The respondents are convinced that the constant application and usage of ICT will go a long way in enhancing the quality of principals' administrative role of planning in Secondary Schools in Rivers State.

The benefits of ICT in secondary schools in Rivers State: the work show that the benefits of ICT in Secondary Schools in Rivers State include making teaching and learning more interesting, it promotes easy access to current information, it makes teachers to be up-to-date in their various disciplines, it facilitates the teacher's and principal's functions and the school benefits from the use of ICT in the improvement of academic standards to a high extent. In all, the respondents agreed that since education remains a veritable tool for national development, the above outlined benefits would be realized if ICT is efficiently applied and used for teaching in secondary schools in Rivers State.

Extent to which government participates in the provision of ICT facilities for effective administration of secondary schools in Rivers State: the work show that the extent to which government participates in the provision of ICT facilities for effective administration of secondary schools in Rivers State include organizing practical training for principals on the use of ICT, government meets up with secondary school needs on ICT, government efforts in deploying more ICT facilities and personnel is encouraging, periodic training is organized for teachers on the use of ICT and Government response to ICT matters and maintenance is low. The respondents are unanimous in their assertion that government does participate in enhancing quality education through effective provision of ICT facilities in Secondary Schools in Rivers State.

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Constraints to the effective utilization of ICT facilities in the administration of secondary schools in Rivers State: the work show that the constraints to the effective utilization of ICT facilities in the administration of Secondary Schools in Rivers State includes inadequate facilities to support full application of ICT, irregular power supply which hinders the use of computer in schools, teachers are very reluctant to adapt to use of ICT in teaching-learning process, there is relatively a lack of computer literate teachers/ instructors and funds are not available for the growth of ICT in secondary schools. It is very glaring that the above identified factors do really militate against the effective utilization of ICT facilities in the administration of Secondary Schools in Rivers State.

Extent to which the non-application of ICT techniques by teachers affect students' academic achievement in secondary schools in Rivers State: the work show that respondents believe that students academic achievement increases with the use of ICT based techniques in teaching while on the other hand students academic achievement are limited with non-application of ICT techniques in teaching. Thus, there is need for good ICT techniques and its upgrade on. Respondents affirmed that the extent to which the non-application of ICT affects students academic performance is very high.

Extent to which the application of ICT in teaching enhance students' rate of academic performance in Rivers state secondary school: the work show that ICT based delivery of instruction exposes the students to more knowledge in different subjects than non based delivery, ICT enhances quality of work for both teachers and students and Students do better academically with exposure to ICT based lessons to a high extent. While the innovativeness of ICT compliant teachers in their style of lesson delivery and its effectiveness is at low extent. The respondents agreed that the above outlined factors indicates that the application of ICT in teaching enhance students' rate of academic performance in secondary schools in Rivers State.

Implications of application of ICT for quality secondary school education: It is an undisputed fact that ICT, when properly used in the field of education, hold great promise to improving teaching and learning in addition to shaping workforce opportunities in secondary schools. This has actually gingered a new and strong desire to equip schools with ICT facilities and qualified personnel necessary to produce technologically proficient and efficient students in developed countries of the world. There is no doubt that ICT can aid the instructional process and facilitate students' learning. Many studies have found positive effects associated with technology aided instruction. As aid to teaching and learning, ICT is capable of activating the senses of sight, hearing and touch of the students. ICT has the capacity to provide higher interactive potential for students to develop their individual, intellectual and creative ability. The main purpose of ICT consists just in the development of human mental resources, which allow people to both successfully apply the existing knowledge and produce new knowledge.

VII. CONCLUSION

The study concluded as follows: There are numerous and good prospects for the use of ICT in teaching and learning in secondary schools in Nigeria, especially Rivers State. ICT serves teachers and learners with different range of applications geared towards promoting quality in secondary education in Nigeria. ICT enhances educational efficiency. The efficiency in teaching various subjects could be improved. For instance, many secondary school teachers are already teaching large classes of students. In this situation, students no longer receive the much desired individual assistance. Furthermore, English language is taught and learned as a second language in Nigeria and many teachers of English are weak. It is possible to use carefully prepared ICT programs to ensure that learners are accurately and systematically instructed. Also, ICT enhances problem-solving skills of the students by focusing on thinking skills especially in subject such as mathematics. ICT serves administrative functions. They can replace the laborious exercise of filing papers in filing cabinets and shelves where records accumulate dust over a long period of time. Another administrative application of ICT is their use for budget planning, accounting for expenditure, writing correspondences and reports, assigning students to classes, reporting students' progress and testing students and scoring tests which help to reduce paper work. of the study. ICT also promote individualized learning in secondary schools in Nigeria. Due to large classes and differences in individual learning style and pace, microcomputers will enable the student to progress at his or her own pace and receive continual evaluation feedback and corrections for errors made. In this way, ICT allows the development of partner-like interactive and individualized relations with the student.

RECOMMENDATIONS

Based on the findings, the following recommendations are made:

1. The level of literacy in ICT should be enhanced by creating awareness through the media and by developing positive attitude towards the application of ICT in secondary schools.
2. Teachers in secondary schools should be armed with appropriate and requisite skills in ICT so as to be able to impact these skills in the students and especially help in trouble-shooting ICT related problems.
3. Power supply in the country is epileptic. ICT operations require constant electricity for its maximum use. Therefore, power supply should be massively increased, improved and worked upon so as to enhance the use of ICT in secondary schools.
4. Educational managers should ensure that students are provided with practical and functional knowledge of computers, the internet and associated areas of ICT.
5. The government should ensure that inclusion of ICT education into public secondary school curriculum is accompanied with essential instructional and infrastructural support and adequate training of skilled manpower.

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6. The government should pay particular attention to the source of electric power by overhauling the energy sector in order to play its crucial and supportive role in the development of ICT in secondary schools.
7. Adequate funds should be allocated and disbursed to public secondary schools for proper financing and maintenance of ICT appliances.
8. There is need for the government at all levels, non-governmental organizations (NGO) and philanthropists to invest in the development of ICT in secondary schools by providing adequate human and material resources.

REFERENCES

1. Onyene, V., Olisaemeka, B. U. & Okpala, L. U. (2011). Quality Assurance and Standard Performance in Selected Public and Private Secondary Schools in Lagos State. African Journal of Educational Research and Development, 4 (2b), 268-275.
2. Fisseha, M. (2011). The Roles of Information Communication Technologies in Education. Review article, with Emphasis to the Computer and Internet. Retrieved December 22, 2012. http://www.ju.edu.et/.../
3. Adeyemo, S. A. (2010). The Impact of Information and Communication Technology (ICT) on Teaching and Learning of Physics. International Journal of Educational Research and Technology, 1(2). Pp. 48-59. Retrieved September 20, 2012. http://www.soeagra.com
4. UNDP. (2004). Promoting ICT for Human Development in Asia. Realizing the Millennium Development Goals. Retrieved January 2, 2013. http://www.apdip-net/projects/rhdr/resources/ india – study. Pd
5. Adeyemi, T. O. & Olaleye, F. O. (2010). Information Communication and Technology (ICT) for the Effective management of Secondary schools for Sustainable Development in Ekiti State, Nigeria. American-Eurasian Journal of Scientific Research, 5(2). Pp. 106-113. Retrieved September 18, 2012. http://www.idosi.org/aejsr/5(2)10/4.pdf
6. UNESCO Institute for Information Technologies in Education. (2005). ICTs for Secondary Education: Specialized training Course. Retrieved September 18, 2012. http://iite.unesco.org/pics/publications/en/files /3214640.pdf
7. Encarta Premium DVD (2009). English Dictionaries. Retrieved May 21, 2011. http://top.windows9download.net/list/encarta-premium-dictionary-2009.html
8. Ndioho, O. F. & Ndioho, E. O. (2011). Practical Experience: A tool for Quality Assurance in Secondary School Science: African Journal of Educational Research and Development, 4 (2a), 176-182.
9. David, T. B. (2003). Popular Theory Supporting the use of Computer Simulation for Experiential Learning. Retrieved November 26, 2012. http://www.liquidknow.com
10. Condie, R. and Munro, B. (2007). The Impact of ICT in schools: a Landscape Review. Retrieved January 23, 2013. http://www.gov.uk/.../publications.../download.cfm?...
11. Hoy, W. K. & Miskel, C. G. (2008). Educational Administration: Theory, Research and Practice (8th ed.). Ohio, New York: Mc Grew Hill.
12. Amanchukwu, R. N. (2002). Educational Management and Planning: Education Resources. Port Harcourt: Harey
13. Peretomode, V. F. (2004). Introduction to Educational Administration, Planning and Supervision. Lagos. Joja
14. Aduwa-Ogiegbaen, S.E., & Iyamu, E.O.S. (2005). Using Information and Communication Technology in Secondary Schools in Nigeria: Problems and Prospects. Educational Technology & Society, 8 (1), 104-112. Retrieved January 5, 2014.http://www.ifets.info/journals/8_1/13.pdf
15. Yusuf , M.O. (?2005). Information and Communication Technology and Education: Analysing the Nigerian National Policy for Information Technology. International Education Journal, 2005, 6(3), 316-321. R etrieved January10, 2014. http://www.files.eric.ed.gov/fulltext/EJ854985.pdf?
16. Ololube, N. P. (2006). The Impact of Professional and Non-professional Teachers' ICT Competencies in Secondary Schools in Nigeria. Journal of Information Technology Impact, 6(2), Pp. 101-118. Retrieved December 10, 2013. http://*www.jiti.com/v06/jiti.v6n2.101-118.pdf*
17. Voogt, J. M., & Pelgrum H. (2005). ICT and Curriculum change. Retrieved December 29, 2012. http://www.humantechnology.jyu.fi
18. Harichandan, D. (2011). Concept of *Information*, Communication and Educational Techonolgy. Education Services Australia. Retrieved January 5, 2014. http://*www.mu.ac.in/myweb_test/ma%20edu/ICT%20-%20Edu..pdf*

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