

Educational Technology: An Enhancement Tools in Teaching and Learning in Public Senior Secondary School in Rivers State

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Citation: Wordu, H., Owabie, D. E. & Dike, C. (2021). Educational Technology: An Enhancement Tools in Teaching and Learning in Public Senior Secondary School in Rivers State. *International Journal of Modern Innovation & Knowledge*, 2(3); 13 – 22.

Abstract

This study examines educational technology as an enhancement tools in teaching and learning in public senior secondary schools in secondary schools in Nigeria. The study adopted the descriptive research design. A population of 13,624 teachers in Rivers State was used for the study. Simple random sampling technique was used to select 436 teachers out of the population which was used as the sample size for the study. The instrument used for data collection was a self-structured questionnaire tagged “Educational Technology as Enhancement Tools Questionnaire”. The instrument was designed on a 4-point Likert scale of Strongly Agree, Agree, Disagree and Strongly Disagree with values of 4, 3, 2 and 1 respectively. The instrument was validated by two experts in measurement and evaluation. The reliability of the instrument was determined using test-retest method which yields a coefficient value of 0.84. Data obtained were analyse using mean and standard deviations for research questions. Item greater than 2.50 was accepted while those less than 2.50 was rejected. The study found that teaching and learning are enhanced through the use of educational technology tools. The study also found that educational technology tools are faced with challenges such as teachers’ knowledge on modern tools, availability of these tools for use and inability of the teacher to use modern tools for teaching. Based on the findings of the study, it was recommended among others that educational technology tools should be provided and made available in secondary schools in Nigeria. Teachers in secondary schools should ensure adequate utilization of these tools that are available to enhance efficiency and effectiveness in teaching and learning.

Keywords: Educational, Technology, Educational Technology, Enhancement Tools, Teaching, Learning

INTRODUCTION

The role educational technology plays in teaching and learning is rapidly becoming one of the most important and widely discussed issues in contemporary education policy (Rosen & Well,

2015; Thierer, 2000). Most experts in the field of education agreed that, when properly used, educational technology hold great promise to improve teaching and learning in addition to shaping workforce opportunities. Poole (2016) has indicated that computer illiteracy is now regarded as the new illiteracy. This has actually gingered a new and strong desire to equip schools with computer facilities and qualified personal necessary to produce technologically proficient and efficient education system that enhances teaching and learning. There is no doubt that educational technology like computer can aid the instructional process and facilitate students' learning. Many studies have found positive effect associated with technology aided instruction (Burnett, 2014; Fitzgerald & Warner, 2016).

In Nigeria, concerted efforts have been made by many governments to initiate Internet connectivity and technology training programs. Such programs link schools around the world that in order to improve education, enhance cultural understanding and develop skills that youths need for securing jobs in the 21st century. In Nigeria, teachers and students are using computers extensively as information tools. These programs in this nation are supported by their government through the ministries of Education. In a rapidly changing world of global market competition, automation, and increasing democratization, basic education is necessary for an individual to have the capacity and capability to access and apply information. Such ability and capability must find bearing in educational technology in the global village. The Economic Commission for Africa has indicated that the ability to access and effectively utilize educational technology is no longer a luxury but a necessity for development. Unfortunately, many developing countries, especially in Africa, are already on the wrong side of the digital divide in the educational use of technology.

The challenge for the teacher information and communications technologies present a range of tools that can be used by teachers to present and demonstrate as part of their teaching as well as something for students to use as part of an activity as individuals or in groups. The drive towards greater use of technology in education is aimed at modernizing teaching and learning and equipping the students of today with skills that will make them able to use such technology in the workplace once they leave school (Bernard & Monity, 2016). Other stated goals have been to reduce teacher work load by making planning and resources available over the internet or to reduce teachers and students' difficulty by providing and exchanging information in electronic form. These technological tools can be explicitly designed for use in education context in teaching program. These tools include an overhead projector interactive board, word-processors and spreadsheets, computer software and hardware among others. The choice of when and how

to use such technologies in teaching and learning activities is complex, the evidence above all clearly indicates that it is how ICT is used that makes the difference.

There is growing evidence that ICT application to education can accelerate and improve learning on a number of fronts, from basic skills such as problem solving, information management, work habits, motivation, establishing life-long learning habits and concepts development (Bernard & Monity, 2016). According to Sutton (2016), ICT in education have been found to promote students' intellectual qualities through higher order thinking, problem solving, improved communication skills, and deep understanding of the learning tool and the concepts to be taught. ICT can promote a supportive, interactive teaching and learning environment, create learning communities, and provide learning tools for students, including those with special needs (Harwkins, 2012).

Kosoko-oyedeko and Tella (2010) have noted that ICT is observed to help students to learn and enabling them to consolidate and deepen their knowledge in skills. According to National Curriculum Action [NCA] (2017) using ICT in teaching can help students to: access, select and interpret information, recognize patterns, relationship and behaviours, model predict and hypothesis, test reliability and accuracy, review and modify their work to improve the quality, communicate with others and present information, evaluate their work, improve efficiency, be creative and take risks, and gain confidence and independence. Kosoko-Oyedeko and Tella (2010) have noted that ICT is a powerful tool that can improve teaching and learning and can help to raise standards by encouraging students to ask questions to promote knowledge and understanding and shared human experience.

Statement of the Problem

The Nigeria's needs for educational technology may appear too simplistic and unnecessary, but cannot be overemphasized. However, the political conditions in Nigeria for the past thirty years leave no room for continuity. Over the years, political power in Nigeria has been used to entrench mediocrity, corruption in high places, misplace priority, and consumer culture. The direct effect of these is a battered economy and an educational system that is decaying by the day. According to Okebukola (2007), the plan to establish pilot schools and thereafter diffuse the innovation, first to all secondary schools and then to the Primary schools. Unfortunately, beyond the distribution and installation of computers in the Federal Government Colleges, the project did not really take off the ground. Okebukola (2007) concluded that computer is not part of classroom technology in over 90% of public schools in Nigeria. Thus, the chalkboard and textbooks continue to dominate classroom activities in most schools in Nigeria. The negative

consequence of this is seen in the level of incompetence displayed by some Nigerian graduate. The researcher is however of the opinion that educational technology can be used as a tool for effective teaching and learning, going by the data from the advanced countries that has already adopted these technologies a long time ago. THOJ international school Aguda Surulere Lagos has ICT center for students, but there are still some lapses. These lapses include few computers for students to use, poor laboratory, small library with few books, lack of qualified teachers and inadequate supply of power among others.

Purpose of the Study

The purpose of the study is to examine educational technology as an enhancement tool in teaching and learning in secondary schools in Nigeria. Objectively, the study seeks;

1. To identify educational technology tools that enhances teaching and learning in public senior secondary schools in Rivers State.
2. To find out the extent of availability of educational technology tools for teaching and learning in public senior secondary schools in Rivers State.
3. To identify the challenges facing the use of educational technology tools for teaching and learning in public senior secondary schools in Rivers State.

Research Question

The following research questions were put forward for the study

1. What are those educational technology tools that enhance teaching and learning in public senior secondary schools in Rivers State?
2. To what extent are educational technology tools available for teaching and learning in public senior secondary schools in Rivers State?
3. What are the challenges facing the use of educational technology tools for teaching and learning in public senior secondary schools in Rivers State?

Significance of the Study

The following are the significance of this study. The outcome of this study would explain the deficit created by lack of educational technologies for teaching and learning in schools. It will also reveal how the educational technology can be used as an enhancement tool for teaching and learning. This research would also be a contribution to the body of literature in the area of educational technology as an enhancement tool for teaching and learning, thereby constituting the empirical literature for future research in the subject area.

METHODOLOGY

The study adopted the descriptive survey design; which aided in eliciting information on the educational technology as an enhancement tools in teaching and learning in public senior secondary school in Rivers State. The population of the study consisted of thirteen thousand six hundred and twenty-four (13,624) teachers from public senior secondary schools in Rivers State were used for the study. The sample size of the study was four hundred and thirty-six (436) teachers public senior secondary schools in Rivers State were selected using simple random sampling technique. The instrument used for data collection was a self-structured questionnaire tagged “Educational Technology as Enhancement Tools Questionnaire (ETETQ)”. The instrument was designed on a 4-point Likert scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with values of 4, 3, 2 and 1 respectively. The instrument was validated by two experts in measurement and evaluation from Rivers State University, Port Harcourt. The reliability of the instrument was determined using test-retest method and was analysed using Pearson Product Moment Correlation (PPMC) coefficient which yields a coefficient value of 0.81. Data obtained were analyse using mean and standard deviations for research questions. The decision was accepting any item with a mean value greater than 2.50 and reject item with mean value less than 2.50.

RESULTS AND DISCUSSION OF FINDINGS

The results of the study were presented as follows.

Research Question 1: What are those educational technology tools that enhance teaching and learning in public senior secondary schools in Rivers State?

Table 1: Mean Response on Educational Tools that Enhance Teaching and Learning.

S/N	Educational Technology Tools	Mean	SD	Decision
1	Computers	2.69	0.65	Accepted
2	Digital Board	2.16	0.74	Accepted
3	Overhead Projectors	2.96	1.03	Accepted
4	CD-Roms	3.05	0.66	Accepted
5	Digital Cameras	3.11	0.53	Accepted
6	Scanners	2.70	0.70	Accepted
7	Tablets and Smart Phones (ipad)	3.05	0.84	Accepted
8	Radio/Television	3.41	1.02	Accepted
9	Internet	2.86	1.01	Accepted
10	Data Projectors	3.28	0.81	Accepted
11	Interactive Board	3.22	0.84	Accepted

12	Virtual Classroom	3.19	0.77	Accepted
13	Emails	2.60	1.01	Accepted
14	Teleconferencing	2.76	0.60	Accepted
15	MS-word, MS-excel, MS-PowerPoint	3.06	0.73	Accepted
Average Mean/SD		2.94	0.80	Accepted

Result from Table 1 show that the respondents accepted that all the items listed are educational technology tools that enhance teaching and learning activities in public senior secondary schools in Rivers State. This is shown in the mean response ranging from 2.16 to 3.41 and an average mean value of 2.94 which is greater than the cut-off point of 2.50.

Research Question 2: To what extent are educational technology tools available for teaching and learning in public senior secondary schools in Rivers State?

Table 2: Mean Response on Extent of Availability of Educational Tools that Enhance Teaching and Learning.

S/N	Extent of Availability of Educational Technology Tools	Mean	SD	Decision
16	Computers are available in a good quantity	1.68	0.63	Rejected
17	Tablets and Smart Phones are always available for teachers and students.	2.04	0.82	Rejected
18	Scanners are provided in every office for use.	1.11	0.64	Rejected
19	There are available internet services within secondary school premises.	1.69	0.77	Rejected
20	Interactive Board is available for used in schools.	1.08	0.63	Rejected
21	Virtual Classroom is provided in every school.	2.14	1.01	Rejected
22	Laptops are available for every teacher to use.	1.31	0.59	Rejected
23	Projectors are available in classroom for learning.	2.06	0.60	Rejected
Average Mean/SD		1.64	0.71	Rejected

Result from Table 2 show that the respondents rejected that all the items listed on extent of availability of educational technology tools that enhance teaching and learning activities in public senior secondary schools in Nigeria. This implies that educational technology tools that enhance teaching and learning in secondary schools are not available. This is shown in the mean

response ranging from 1.08 to 2.06 and an average mean value of 1.64 which is less than the cut-off point of 2.50.

Research Question 3: What are the challenges facing the use of educational technology tools for teaching and learning in public senior secondary schools in Rivers State?

Table 3: Mean Response on Challenges Facing the Use of Educational Tools that Enhance Teaching and Learning

S/N	Challenges Facing the Use of Educational Technology Tools	Mean	SD	Decision
1	Teachers' knowledge on modern tools.	3.60	0.88	Accepted
2	Low level of teachers' competency.	3.41	0.82	Accepted
3	High cost of acquiring these facilities.	3.20	0.73	Accepted
4	Availability of these tools for use.	3.09	0.61	Accepted
5	Poor network as most of the tools are internet dependent.	3.11	0.71	Accepted
6	Poor power supply	3.50	0.60	Accepted
	Average Mean/SD	3.32	0.73	Accepted

Result from Table 3 show that the respondents accepted that all the items listed are challenges facing the use of educational technology tools to enhance teaching and learning activities in public senior secondary schools in Rivers State. This is shown in the mean response ranging from 3.09 to 3.60 and an average mean value of 3.32 which is greater than the cut-off point of 2.50.

Discussion of Findings

Result from Table 1 revealed that educational technology tools that enhance teaching and learning in secondary schools in Nigeria include computers, tablets and smart phones, learning management system, internet, interactive board, virtual classroom, teleconferencing and assessment management system among others. This finding is in line with that of Deebom and Zite (2016) who found that technology tools that are used for teaching and learning in schools today include the internet, laptops, and portable computers among others. The result of this study is also in collaboration with Deebom and Goma (2018) who aver that educational technology tools that enhance teaching and learning in colleges are interactive board, desktop computers, visual board and video tapes.

Result from Table 2 revealed the extent of availability of educational technology tools that enhance teaching and learning activities in secondary schools in Rivers State. The finding of

the study show that computers are not available in a good quantity, tablets and Smart Phones are always not available for teachers and students, interactive board is not available to teachers and students among others. This finding is in line with that of Deebom and Zite (2016) who found that technology tools that are used for teaching and learning in schools today include the internet, laptops, and portable computers among others are not available for utilization in teaching and learning. The result of this study is also in collaboration with Deebom and Goma (2018) who aver that educational technology tools that enhance teaching and learning in colleges are interactive board, desktop computers, visual board and video tapes.

Result from Table 3 revealed that educational technology tools that enhance teaching and learning in secondary schools in Nigeria are face with challenges such as teachers' knowledge on modern tools, low level of teachers' competency, poor network as most of the tools are internet dependent and high cost of acquiring these facilities. The finding of this study agree with that of Mojgan, Kamariah, Wong, Bahaman and Foo (2009) as found opined that factors that affects Teachers' use of educational information and communication technology tools in teaching include non-manipulative factors are factors that cannot be influenced directly by the school, such as age, teaching experience, computer experience of the teacher or governmental policy and the availability of external support for schools while , manipulative factors refer to the attitudes of teachers towards teaching and ICT, ICT knowledge and skills of teachers, commitment of the school towards the implementation process and availability of ICT support.

CONCLUSION

The study conclude that application of educational technology tools enhances teaching and learning activities in secondary schools in Nigeria. These tools that can be used to enhance teaching and learning as found out in the study include computers, tablets and smart phones, interactive board, internet, projector, virtual classroom, teleconferencing among others. However, application of these tools is mar with challenges which such as teachers' knowledge on modern tools, low level of teachers' competency, poor network as most of the tools are internet dependent and high cost of acquiring these facilities, availability of these tools for use and inability of the teacher to use modern tools for teaching. If these challenges are reduced, educational technology enhance teaching and learning to a high extent in secondary schools in Rivers State.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations were made:

1. Educational technology tools should be provided and made available in secondary schools in Nigeria.
2. Teachers in secondary schools should ensure adequate utilization of these tools that are available to enhance efficiency and effectiveness in teaching and learning.
3. Periodic training and retraining services should organize for teachers and other secondary school stakeholders on how to use these tools in teaching and learning in Nigerian secondary schools.

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