

Investigation of Technological Availability and Teachers Technological Proficiency in Public Secondary School in Rivers State

Sililayefa Abadom (Ph.D)

Department of Educational Psychology, Guidance and Counseling
(Measurement and Evaluation option), Jasper Boro College of Education, Sagbama, Bayelsa State

Ebiye Charles

PhD Candidate, Department of Educational Psychology, Guidance and Counseling
Ignatius Ajuru University of Education, , Port Harcourt, Rivers State

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ABSTRACT: *This study investigated the availability of technology and teachers' technological proficiency in public secondary school in Rivers State. The study adopted the survey research design. The population of the study was all the 7,425 public secondary school teachers in the 268 in Rivers State. Simple random sampling technique was first used to select two schools from each LGA in the three senatorial districts of Rivers State, which gave a total of 46 schools. Again the simple random sampling technique was used to select 10 teachers from each sampled schools, which gave a sample size of 460 teachers. The instrument for data collection was a self-constructed questionnaire titled "Availability of Technology and Teachers Technological Proficiency Questionnaire (ATTTPQ)", which had been validated by experts. The reliability index was established using Cronbach Alpha formula and a value of 0.79 was obtained. Three research questions were formulated and answered using frequency count and simple percentage and mean. The findings revealed that, majority of the schools lacks technological facilities and the few available once are computers, photocopiers and printers. The study also revealed that most of the teachers also lack technological proficiency. The study recommended that; the government should endeavor to provide some of the basic technological facilities in schools because of it significant to teaching and learning and the secondary school administrators should periodically be organizing workshops/seminars for teachers on technological proficiency.*

KEYWORDS: availability of technology, technology proficiency, secondary school teachers

INTRODUCTION

In our today's society, the teaching and learning has become more and more dependent on technology, and this has made it a driving force in education. Schools are transforming and the integration of digital advances into the classroom is necessary and inevitable. Studies have shown

that students who learn in a technologically rich environment experience positive effects on their performances irrespective of the subjects. In the same line of thought, Ebo (2016) in his study pointed out that, Information and Communication Technology (ICT) provides fast and accurate feedback to student and speed of computation and graphing, thus freeing student to focus on strategies and interpretations. Ozdemir and Yirci (2015) noted that, the goal of any contemporary educational system, is to raise individuals who can search for ways to obtain information, know where and how to use the information and have skills of critical thinking. He further said that, this goal can be met with teachers because teachers are considered the key factor in the teaching learning process.

A teacher is a person who is specially trained in knowledge, skills, attitude and values, in a formal training institution, to teach or impact same to learner in most acceptable ways. In this twenty first century, a teacher without a technological knowledge (technology proficiency) in addition, lacks adequate professional competence. And studies have shown that teachers must possess technological proficiency in order to increase the motivation of their students. This means that as technology advances, an educator's abilities should grow by leaps and bounds, and without the knowledge of these changes and capabilities, an instructor or a teacher has a good chance of being left behind; and this can lead to poor performance of students. According to Johnson as cited in Harris, et al (2016) they asserted that, the computer as a technology, if utilized accurately, have the ability to "invoke dream in the minds of visionary educators who was endless potential for altering traditional notions of teaching and learning" (p.2).

This study set out to show the significant of teaching and learning, with the availability of technology and technological proficiency of the teachers in public secondary school in Rivers State in particular and the nation at large.

Problem

The inability of the public schools not to participate in the teaching and learning process during Coronavirus pandemic instigated the researchers to carry out this research investigation. During the peak of Corona Virus (COVID-19) in 2020, the researchers observed that, most private schools (both primary and secondary) in Rivers State in particular were having their classes online (internet) using zoom and other social media network. But none of the public primary or secondary schools that partake in the e-learning or online learning, except some of the public universities. The question now is, could it be lack of technological facilities and teachers' technological proficiency in the public primary or secondary schools?

Aim and Objectives of the study

The aim of this study is to investigate the availability of technology and teachers' technological proficiency in public secondary school in Rivers State. Specifically, the study achieved the following:

To determine the available technological facilities in public secondary schools in Rivers State.

To determine the level of teachers' technological proficiency in computer in public secondary school.

To determine the level of teachers' technological proficiency in internet in public secondary schools in Rivers State.

Research Questions

the following research questions were formulated to guide the study:

1. What are the available technological facilities in public secondary schools in Rivers State?
2. What is the level of teacher technological proficiency in computer in public secondary school?
3. What is the level of teacher technological proficiency in internet in public secondary school?

REVIEW OF RELATED LITERATURE

Technology

The term technology is traced from the word "techne"; which means, activities by which man searches to adapt to his environment (Olaoye as cited in Onipede, 2010). It also has broad scope of definitions. Homby (2002) defined "as a scientific knowledge, used in practical ways, especially in the designing of new machines, machineries and equipment". For Olaoye (2009), he explained technology to mean "the transformation of a theoretical idea to a practical skill in order to produce the objects of one's need". To Grisham and Wosley (2006), they defined "Technology is the practical form of scientific knowledge or the science of application of knowledge to practical". In summary, technology has been described or seen as something that permits most difficult task to become seamlessly simple and more effective using machines or equipment. In other word, technologies are equipment or machines that can be applied to make difficult task to become seamlessly simple and more effective. It can be applied in many facets of our lives, including our education system.

Technology in Education

In the educational system, technology especially in the civilized countries has made the distribution of knowledge to be spread immediately and it allows for faster and very effective communication. Technology also has allowed learners (students) to be occupied as well as learn in a manner that they never have in a traditional classroom setting. According to Grisham and Wosley (2006), they stated that, "technology empowers students providing them with an opportunity to shape their own learning".

Technology can be instrumental in making teachers more efficient. In our society, some of the most commonly used technologies to make teaching and learning process efficient are; Desktop and laptop Computers, Internet, Projectors, Audio Enhancements, Electronic bulletin board, Interactive Whiteboard, Television, Video tape recorder etc. These facilities are the most commonly used technological facilities in our classroom environment more especially the Desktop/laptop Computers, Internet, Projectors and Audio Enhancements.

Teachers Technological Proficiency

The word proficiency refers to the degree in which an individual is considered to be able to perform series of actions using the appropriate tools or materials to achieve the set goals (Georgina & Hosford, 2009). The appropriate tools or materials to achieve the set goals can be from technology.

Rivoltella (2006) asserted that, technology proficiency seems relevant for several characteristics of teaching profession. Thus teacher technology proficiency or technological proficiency is the ability of a teacher to use technological devices in teaching. According to Saad and Sankaran (2020) “the concept of technology proficiency in teaching and facilitating involves teachers' knowledge in using technological resources in an accessible and feasible way to maximize the effect of learning in classroom settings”. He added;

In classroom settings, technology proficiency refers to the ability of teachers to integrate technology to teach and facilitate, as well as to improve learning, productivity, and performance. These abilities are needed to participate in a technological world. Technology proficiency enables teachers to identify and explore a wide variety of technological tools and devices in order to determine and select those that best respond to teaching and learning contents. Among teachers, basic proficiency in information technologies is typically used to communicate electronically, organize activities and information, and create documents in schools or higher-education institutions.

The world is gradually taking over by technology in all ramifications and so, it is necessary for a teacher to combine technology in the teaching and learning process in this twenty first century to facilitate learning. Saad and Sankaran (2020) describe computer as a technology that is “used to support four goals: Building student capacity for research, making student inquiry more realistic, enabling students to present information in appealing forms, and offering students access to learning resources within and beyond the school”. He further stated that, whatever theory an educator may clinch, there are existing technologies to enhance instruction as well as to support students learning. That is why teachers' technological proficiency seems to be relevant in the teaching profession.

METHODOLOGY

The study adopted the survey research design. The population for the study comprised of 268 Senior Secondary Schools with 7,425 teachers. First, the simple random sampling technique was used to select two schools from each LGA in the three senatorial districts of Rivers State, which gave a total of 46 schools. The choice of using two schools was based on the premise that, some of the LGA has at most three senior secondary schools across the three Senatorial Districts of Rivers State. In each of the two selected schools, the simple random sampling technique was again used to select 10 teachers from each sampled schools, which gave a sample size of 460 teachers. The instrument for the study was a self-constructed questionnaire titled “Availability of Technology and Teachers Technological Proficiency Questionnaire (ATTTPQ)”. The content validity was used to ensure the validity of the instrument by two experts and a Cronbach Alpha reliability method was used to test the reliability of the questionnaire, which yielded a reliability index of 0.79 and 0.83 for each measure. The questionnaire was administered to senior secondary schools teachers and retrieved. The return rate of the administered questionnaire was ninety five

percent (95%), which amount to 436 copies retrieved. Data analysis was done using frequency, percentages, ranking and mean to answer the research questions.

ANALYSIS AND RESULTS

Research Question 1

What are the available technological facilities in public secondary schools in Rivers State?

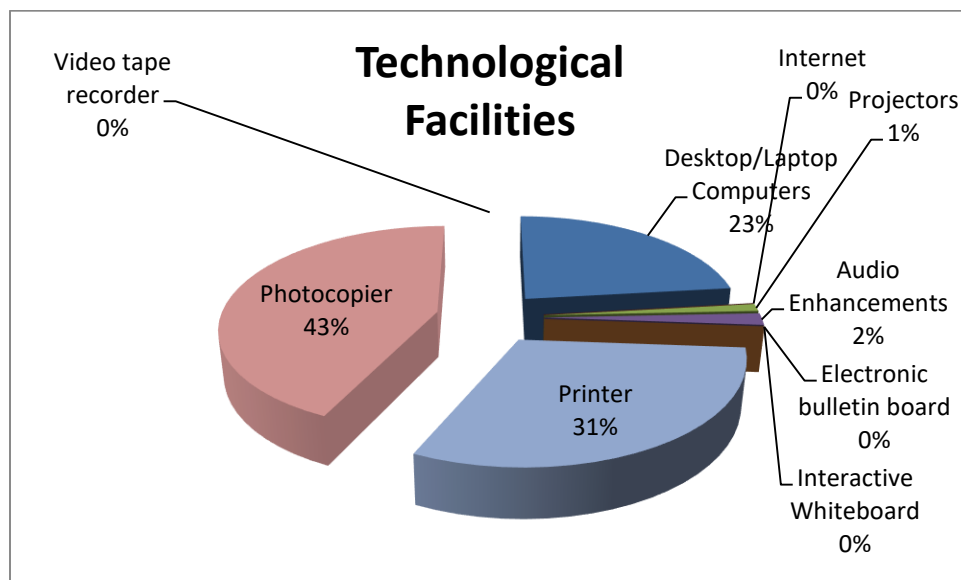
Table 1

Responses on the Available Technological Facilities in Public Secondary Schools

s/n	Technological Facilities	Frequency	Percentage
1	Desktop/Laptop Computers	101	23
2	Internet	0	0
3	Projectors	5	1
4	Audio Enhancements	8	2
5	Electronic bulletin board	0	0
6	Interactive Whiteboard	0	0
7	Printer	134	31
8	Photocopier	188	43
9	Video tape recorder	0	0
	Total	436	100

Figure 1

Pie Chart of Technological Facilities



In Table 1 and Figure 1, the table and figure expresses the technological facilities available in their schools. From the table; and as shown in the figure (per chart), the technological facilities that are available in most of the schools are photocopier which constitute 43% followed by printers with 31% and desktop/laptop computer with 23%. While none of the schools in the sample study have the technological facilities of internet, interactive whiteboard and video tape recorder. It was also revealed that, most of the available facilities are not being utilized for the students.

Research Question 2

What is the level of teachers' technological proficiency in computer in public secondary school?

Table 2: *Level of Teacher Technological Proficiency in Computer*

s/n	Items	N	Mean	Ranks
1	Teaching with projector	436	1.41	4 th
2	Using word processors	436	2.31	1 st
3	Transferring data from device to device	436	1.83	2 nd
4	Using of spreadsheets	436	1.78	3 rd
5	Using slide presentation	436	1.38	5 th
Criterion Mean = 2.5				

In Table 2, the values of the entire mean are below the criterion mean of 2.5. This indicated that, the majority of the respondents have low level of technological proficiency in computer. From the ranking, it was revealed that some of the teachers are more proficient in using word processor of the computer aspect of technology.

Research Question 3

What is the level of teacher technological proficiency in internet in public secondary school?

Table 3

Level of Teacher Technological Proficiency in Internet

s/n	Items	N	Mean	Remarks
6	Teaching through the use of social networks	436	1.53	4 th
7	Sending and receiving e-mail	436	2.72	1 st
8	Using software for e-learning	436	1.29	5 th
9	Using browsers	436	2.43	2 nd
10	Using e-learning such as zoom	436	1.26	6 th
11	Downloading teaching "apps" to facilitate learning	436	2.21	3 rd
12	Displaying a Skype chat to a documentary	436	1.23	7 th
Criterion Mean = 2.5				

In Table 3, the values of the entire mean are below the criterion mean of 2.5; except the mean value of 2.72, which is above the criterion mean. From the ranking, it was revealed that some of the teachers are more proficient in sending and receiving e-mail, using browsers and downloading teaching “apps” to facilitate learning. The high ranking mean values indicated some level of proficiency in those aspects of internet technology. While the low ranking mean values indicated no proficiency in those aspects of internet technology, and they are teaching through the use of social networks with mean value of 1.53 and ranked 4th, using software for e-learning with mean value of 1.29 and ranked 5th, using e-learning such as zoom with a mean value of 1.26 and ranked 6th and displaying a Skype chat to a documentary with mean value of 1.23 and it ranked 7th.

CONCLUSION/RECOMMENDATIONS

From the investigation, it was revealed that most of the public senior secondary schools in Rivers State do not have technological facilities for teaching the students and the majority of the teachers lack the basic technological proficiency. It is concluded that the public senior secondary schools in Rivers State lacks technological facilities as well as teachers’ technological proficiency. If the government endeavors to provide some of the basic technological facilities, there will be tendency for increase in teachers’ technological proficiency in public secondary schools in Rivers State. The study recommended that: The government should endeavor to provide some of the basic technological facilities in schools because of it significant to teaching and learning; secondary school administrators should periodically be organizing workshops/seminars for teachers on technological proficiency and school administrators should also make sure that the few available technological facilities should be utilized for teaching learning process rather than stocking them.

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