

Problems And Prospects of Technology Use in Teaching and Learning in Secondary Schools in Obio Akpor Local Government Area of Rivers State, Nigeria

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Abstract

This study focused on the problems and prospects of technology use in teaching and learning in Obio Akpor Local Government Area of Rivers State, Nigeria. There is a universal recognition and growing need to the use of information and communication technology (ICT) in teaching and learning in secondary schools in the study area; but efforts must be made towards managing the negative impacts it poses on children; which may be detrimental not only to schools, but to the society at large. We are in globalization era, where one could access information through satellites and internet and the information collated can either make or mar most of our students in the study area. Some research questions were formulated to guide this study to determine the minds of students and teachers within the study area. Survey research design was adopted for the study and the population of the study comprises the entire students in secondary schools in Obio Akpor L. G. A of Rivers State. Two instruments titled: Problems of technology use in teaching and learning in secondary schools and prospects of technology use in teaching and learning questionnaires were used to collect data from the respondents (students and teachers from different secondary schools from the study area). Data was analyzed using weighted mean and a positive result was obtained from decisions made. The results revealed some major problems that must be well handled by both teachers and parents of the study area so as to achieve success in teaching and learning. Again, some promising prospects were established towards ensuring effective utilization of ICT by students in Obio Akpor Local Area of Rivers State.

Keywords: Problems, Prospects, Teaching, Learning, Technology.

Introduction

Problems and prospects of technology use in teaching and learning in secondary schools in Obio Akpor Local Government Area of Rivers State was borne out of passion and willingness towards ameliorating the negative impacts as well as effects of technology use on our children in the aforementioned area. Also, proposing ways in which technology use can be adopted fully in all secondary schools in Obio Akpor L. G. A of Rivers State; so as to make learning fun and captivating to both students and teachers. Technology serves as a key through which hidden truths

are unlock for the betterment of the society. Technology is seen as a “tool maker” or a “craft man” who can hit iron and transform its shape to his taste, without understanding the underlying principle (Okeke, 2003). The Federal Government of Nigeria (2004) in her National Policy on Education defined technology education as the aspect of education which leads to the acquisition of practical and applied skills and basic scientific knowledge. Education serves a tool for transformation of minds of learners irrespective of levels.

Technology plays a major role in different sectors of economy like medicals, engineering, transportation, law, research institute, education e.t.c. and the above areas have utilized the efficiency of technology making them better as compared to other sectors. Onyia & Ugwu (2014) identified the following problems associating with education in Nigeria ranges from inadequate supply of instructional materials/equipment, lack of skilled facilitators, epileptic power supply, attitude of the instructors and the learners as well as organizational constraints. Educational prospect like taking care of large classes of students, availability of learning materials were identified as tools to technology promotion in Nigeria (Onyia & Ugwu, 2014).

Learning can be regarded as a change that is permanent in nature because it is brought to students by a tutor through different techniques like developing specific skills, changing some attitudes, or understanding specific scientific law operating behind a learning environment (Sequeira, 2012). Teaching and learning can also be seen as the transformation process of knowledge from teachers to students, it is also the combination of various elements within the process where an educator identifies and establish the learning objectives and develop teaching resources and implement the teaching and learning strategy (Munna & Kalam, 2021).

Other problems related to technology use in Nigeria emanate from high cost of purchasing Information and communication technology materials such as computers, peripherals like printers, monitors, papers, disks drive, modem are beyond the reach of some schools most especially those sited in interior villages. Eze and Aja (2014) pointed out some inhibiting factors preventing the application and spread of ICT in secondary schools in Nigeria and it includes: human capital factors (poverty, low literacy level, poor IT skills), institutional factors (poor internet access and low bandwidth, high cost of ICT services, lack of investments by private and government). Learning and teaching with gadgets remain the best option, if it can be afforded or made available by government and well meaning individuals; to the students because it makes learning fun and stress free on the side of the teachers. Most students, especially in this 21st century prefer audio – visual mode of teaching/learning than audio because it enables them to recollect what was taught faster during and after their examination.

This study seeks to access and analyze problems affecting students and teachers in the aforementioned area, and shall propose basic prospects that technology will help students and teachers achieve in their day to day interaction in their various classrooms and also aids students make the right choice in their future career choices.

Materials and Methods

Materials

About four (4) research questions were formulated and they include:

- What are the problems hindering the effective use of technology in secondary schools in Obio Akpor Local Government Area of Rivers State?
- What will be the benefits of both students and teachers in secondary schools in the study area if the use of technology is fully implemented by either the government or well meaning Nigerians?
- In what way (s) can students and teachers improve themselves to ensure effective use of technology in their various schools in Obio Akpor L. G. A?
- How can students in the study area apply the knowledge acquired through the use of technology in their future endeavors?

To answer the above questions, the entire students in the regions were considered in both private and public schools in the area; but about fifty (50) schools were chosen for the research, where about 1500 copies of questionnaires were marked by both students and teachers in selected region covering Woji, Eliozu, Romuola, Elelenwo, Eneka, Rumudara, Rumubiakani, Rumuorolu, Rukpokwu e.t.c. The technique adopted was a systematic sampling technique where the researcher chose 25 students and 5 teachers per school randomly from SS1 – SS3 of different schools in the stated areas. The whole exercise was well supervised by the researcher.

Methods

In this study, a total of one thousand five hundred (1500) questionnaires were marked by students and teachers of different schools within the study area. A descriptive research method was adopted to seek the consent of both students and teachers of the study area, representing the interest of students within the area. The study tends to determine their challenges and expectations if their laboratories are well equipped; and also boost creative and research ideas in them.

Data collection was thoroughly done using questionnaires comprising strongly agreed (4 points), agreed (3 points), disagreed (2 points) and strongly disagreed (1 point). These questionnaires were marked by students and teachers of schools with well equipped laboratories. The exercise (instrument administration) was guided by the researcher as students and teachers expressed their views on the problems and prospects of technology use in their various schools. The data (opinion of the respondent) collected were thoroughly analyzed by the researcher using the assumed mean method.

Results and Discussion

The following are research questions extracted from the objectives of the study:

- Item 1: What are the problems that hinder the effective use of technology in secondary schools in obio Akpor Local Government Area?

Table 1: Research sub - questions from the first research question (Item 1)

S/no.	Item 1	SA(4)	A(3)	D(2)	SD(1)	Total Sample	Weighted Mean	Remark
1.	Teacher's and student's inability to use computer slows down the effectiveness of technology in secondary schools in Obio Akpor L.G. A.	560	500	250	190	1500	2.75	Accepted
2.	Power failure is one of the key factor affecting the use of technology in secondary schools in Obio Akpor L. G. A	1000	250	190	60	1500	3.46	Accepted
3.	Most learning process are often interrupted by poor network connection.	750	450	200	100	1500	3.23	Accepted
4.	Student's population in public and some private schools is another factor that makes the use of technology ineffective in secondary schools in Obio Akpor L. G. A	800	300	250	150	1500	3.17	Accepted
5.	Many schools, parents and even the government cannot provide the necessary gadgets needed for effective use of technology in secondary schools in Obio Akpor L. G. A	630	500	220	150	1500	3.05	Accepted

From the above table, the weighted mean for item 1 is calculated as follows:

$$\text{Weighted Mean} = \frac{(560 \times 4) + (400 \times 3) + (250 \times 2) + (190 \times 1)}{1500} = \frac{2240 + 1200 + 500 + 190}{1500} = \frac{4130}{1500} = 2.75$$

The weighted means for item 1 (covering question 1 - 5) above are: 2.75, 3.46, 3.23, 3.17 and 3.05 respectively.

The percentage for each question is calculated below:

$$\text{For question 1, strongly agreed} = \frac{560}{1500} \times 100\% = 37.3\%$$

$$\text{Agreed} = \frac{500}{1500} \times 100\% = 33.3\%$$

$$\text{Strongly disagreed} = \frac{250}{1500} \times 100\% = 16.6\%$$

$$\text{Disagreed} = \frac{190}{1500} \times 100\% = 12.6\%$$

NB: For a result to be positive or acceptable in weighted mean method of data computation, the weighted mean must begin with 2.5.

From the records obtained from the respondents (**research question 1 of item 1**), about 37.5% go for strongly agreed (SA); 33.3% go for agreed (A); 16.6% go for strongly disagreed (SD) and 12.6% go for disagreed (D). Judging from the above results with a weighted mean of 2.75, it can be concluded that student's and teacher's inability to use computer and other technological gadgets is a key problem hindering the effective use of computer in teaching and learning in secondary schools in the study area.

For research question 2 of item 1, about 66.7% go for strongly agreed (SA); 16.7% go for agreed (A); 12.7% go for strongly disagreed (SD) and 3.9% go for disagreed (D). The weighted mean of 3.46 was obtained, which is highly positive. It is obvious from the result that power failure is one of the problems affecting the use of technology in secondary schools in Obio Akpor L. G. A

For research question 3 of item 1, about 50% go for strongly agreed (SA); 30% go for agreed (A); 13.3% go for strongly disagreed (SD) and 6.7% go for disagreed (D). The weighted mean of 3.17 was obtained showing that most learning process in the study area are often interrupted by poor network connection. This makes access to internet, for effective connectivity difficult for both students and teachers in the area.

For research question 4 of item 1, about 53.3% go for strongly agreed (SA); 20% go for agreed (A); 16.7% go for strongly disagreed (SD) and 10% go for disagreed (D). The result verified that student's population in public and some private schools is another factor that makes the use of technology ineffective in secondary schools in the study location. Inadequate computer systems and relevant gadgets have paved way for paring of many students in groups, which makes teaching and learning cumbersome.

For research question 5 of item 1, about 42% go for strongly agreed (SA); 33.3% go for agreed (A); 14.7% go for strongly disagreed (SD) and 10% go for disagreed (D). The result shows a weighted mean of 3.05, demonstrating a positive result. The result shows that many schools, parents and even the government cannot provide the necessary gadgets needed for effective use of technology in secondary schools in Obio Akpor L. G. A. This problem is so essential, such that it create a gap between children from rich homes and those from poor homes.

- Item 2: What will be the benefits of both students and teachers in secondary schools in the study area if the use of technology is fully implemented by either the government or well meaning Nigerians?

Table 2: Research sub - questions from the second research question (Item 2)

S/no.	Item 2	SA(4)	A(3)	D(2)	SD(1)	Total Sample	Weighted Mean	Remark
1.	Implementation of technology use in the study area would make qualitative teaching and learning fun.	625	500	250	125	1500	3.08	Accepted
2.	Provision of technological gadgets and networks shall boost and revive culture among students in the study area.	1000	375	100	25	1500	3.57	Accepted
3.	Implementation of technology use in the study area shall create rooms for multiple skill acquisitions among the students in the area.	500	375	375	250	1500	2.75	Accepted
4.	Student's exposure to technology use in the above area would contribute greatly to Rivers state's and Nigeria's economy.	450	600	400	50	1500	2.97	Accepted

From the above table, the weighted mean for item 2 is calculated as follows:

$$\text{Weighted Mean} = \frac{(625 \times 4) + (500 \times 3) + (250 \times 2) + (125 \times 1)}{1500} = \frac{2500 + 1500 + 500 + 125}{1500} = \frac{4625}{1500} = 3.08$$

The weighted means for item 2 (covering question 1 - 4) above are: 3.08, 3.57, 2.75 and 2.97 respectively.

The percentage for each question is calculated below:

$$\text{For question 1, strongly agreed} = \frac{625}{1500} \times 100\% = 41.7\%$$

$$\text{Agreed} = \frac{500}{1500} \times 100\% = 33.4\%$$

$$\text{Strongly disagreed} = \frac{250}{1500} \times 100\% = 16.6\%$$

$$\text{Disagreed} = \frac{125}{1500} \times 100\% = 8.3\%$$

NB: For a positive and acceptable result using weighted mean method of data computation, the weighted mean must begin with 2.5.

From the records obtained from the respondents (**research question 1 of item 2**), about 41.7% go for strongly agreed (SA); 33.4% go for agreed (A); 16.6% go for strongly disagreed (SD) and 8.3% go for disagreed (D). By concluding based on the above results with a weighted mean of 3.08, it

has shown that Implementation of technology use in the study area would make qualitative teaching and learning fun among students and teachers in the study area.

For research question 2 of item 2, about 66.7% go for strongly agreed (SA); 25% go for agreed (A); 6.7% go for strongly disagreed (SD) and 1.6% go for disagreed (D). The weighted mean of 3.57 was obtained, which is highly positive. It is obvious from the result that provision of technological gadgets and networks shall boost and revive culture among students in the study area.

For research question 3 of item 2, about 33.3% go for strongly agreed (SA); 25% go for agreed (A); 25% go for strongly disagreed (SD) and 16.7% go for disagreed (D). The weighted mean of 2.75 was obtained showing that Implementation of technology use in the study area shall create rooms for multiple skill acquisitions among the students in the area. There by creating job opportunities to students who may that have access to university education due to financial constraint.

For research question 4 of item 2, about 35% go for strongly agreed (SA); 40% go for agreed (A); 26.7% go for strongly disagreed (SD) and 3.3% go for disagreed (D). The result vindicated that student's exposure to technology use in the above area would contribute greatly to Rivers state's and Nigeria's economy, thereby creating employment opportunities not only to the learners, but other teaming youths and adults who make wish to work in learner's establishments after a period learning and establishment of firm.

- Item 3: In what way (s) can students and teachers improve themselves to ensure effective use of technology in their various schools in Obio Akpor L. G. A?

Table 3: Research sub - questions from the third research question (Item 3)

S/no.	Item 3	SA(4)	A(3)	D(2)	SD(1)	Total Sample	Weighted Mean	Remark
1.	Teachers and students must undergo thorough training in the area of operating, repairing and handling for technological gadgets.	1000	375	90	35	1500	3.56	Accepted
2.	Teachers and students must see technology use as the only instrument for effective teaching and learning in 21 st century	500	375	500	125	1500	2.83	Accepted

From the above table, the weighted mean for item 3 is calculated as follows:

$$\text{Weighted Mean} = \frac{(1000 \times 4) + (375 \times 3) + (90 \times 2) + (35 \times 1)}{1500} = \frac{4000 + 1125 + 180 + 35}{1500} = \frac{5340}{1500} = 3.56$$

The weighted means for item 3 (covering question 1 - 2) above are: 3.56 and 2.83 respectively.

The percentage for each question is calculated below:

$$\text{For question 1, strongly agreed} = \frac{1000}{1500} \times 100\% = 66.7\%$$

$$\text{Agreed} = \frac{375}{1500} \times 100\% = 25\%$$

$$\text{Strongly disagreed} = \frac{90}{1500} \times 100\% = 6\%$$

$$\text{Disagreed} = \frac{35}{1500} \times 100\% = 2.3\%$$

NB: For a result to be positive or acceptable in weighted mean method of data computation, the weighted mean must begin with 2.5.

From the records obtained from the respondents (**research question 1 of item 3**), about 66.7% go for strongly agreed (SA); 25% go for agreed (A); 6% go for strongly disagreed (SD) and 2.3% go for disagreed (D). Judging from the above results with a weighted mean of 3.56, it shows that teachers and students must undergo thorough training in the area of operating, repairing and handling for technological gadgets. This would enable them to operate the instruments effectively and also reduce the cost of repairs whenever any of the instruments is faulty.

For research question 2 of item 3, about 33.3% go for strongly agreed (SA); 25% go for agreed (A); 33.3% go for strongly disagreed (SD) and 8.4% go for disagreed (D). The weighted mean of 2.83 was obtained, which is highly positive. It is obvious from the result that teachers and students must see technology use as the only instrument for effective teaching and learning in 21st century. This would enable the learners and the instructors to be at the same pace with others in other parts of the world.

- Item 4: How can students in the study area apply the knowledge acquired through the use of technology in their future endeavors?

Table 4: Research sub - questions from the forth research question (Item 4)

S/no.	Item 4	SA(4)	A(3)	D(2)	SD(1)	Total Sample	Weighted Mean	Remark
1.	The knowledge acquired through the use of technology makes student's choices of career simple and easier.	750	500	150	100	1500	3.27	Accepted
2.	The knowledge acquired helps them to cultivate self – employment attitude after their secondary school education most especially in the area of information and communication technology (ICT).	625	375	350	150	1500	2.83	Accepted

3.	It enables the students to break academic barriers they encountered in their secondary school days and broadens their intellects towards overcoming similar challenges in the future.	625	250	375	250	1500	2.83	Accepted
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From the above table, the weighted mean for item 4 is calculated as follows:

$$\text{Weighted Mean} = \frac{(750 \times 4) + (500 \times 3) + (150 \times 2) + (100 \times 1)}{1500} = \frac{3000 + 1500 + 300 + 100}{1500} = \frac{4900}{1500} = 3.27$$

The weighted means for item 4 (covering question 1 - 3) above are: 3.27, 2.83 and 2.83 respectively.

The percentage for each question is calculated below:

$$\text{For question 1, strongly agreed} = \frac{750}{1500} \times 100\% = 50\%$$

$$\text{Agreed} = \frac{500}{1500} \times 100\% = 33.3\%$$

$$\text{Strongly disagreed} = \frac{150}{1500} \times 100\% = 10\%$$

$$\text{Disagreed} = \frac{100}{1500} \times 100\% = 6.7\%$$

NB: For a result to be positive or acceptable in weighted mean method of data computation, the weighted mean must begin with 2.5.

From the records obtained from the respondents (**research question 1 of item 4**), about 50% go for strongly agreed (SA); 33.3% go for agreed (A); 10% go for strongly disagreed (SD) and 6.7% go for disagreed (D). The weighted mean of the above result is 3.27. it shows that the knowledge acquired through the use of technology makes student's choices of career simple and easier. Students who have background knowledge from practical training find it easy to chose their intended career and fit into it.

For research question 2 of item 4, about 41.7% go for strongly agreed (SA); 25% go for agreed (A); 23.3% go for strongly disagreed (SD) and 10% go for disagreed (D). The weighted mean of 2.83 was obtained, which is highly positive. It shows that the knowledge acquired helps students to cultivate self – employment attitude after their secondary school education most especially in the area of information and communication technology (ICT).

For research question 3 of item 4, about 41.6% go for strongly agreed (SA); 16.76% go for agreed (A); 25% go for strongly disagreed (SD) and 16.7% go for disagreed (D). The weighted

mean of 2.83 was obtained, which is highly positive. It was concluded that technology use enables the students to break academic barriers they encountered in their secondary school days and broadens their intellects towards overcoming similar challenges in the future.

The above tables illustrate the analysis of the results obtained from the research questions. Study showed that the reason why technology use in teaching and learning in secondary schools in Obio Akpor Local Government Area is not effective is as the results of the following problems:

- Inability of both students and teachers to operate technological gadgets used in day to day teaching and learning in the study area,
- Power failure in most part of the study area.
- Poor network connections.
- Students to teacher population ratios in most private and public schools in the study area.
- Lack of support by schools, parents and government.

Again, based on the results obtained by the researcher, the following prospects were proposed to solve the problems:

- Creating a conducive teaching and learning environment, with well installed internet facilities and power supply for effective teaching and learning process by well meaning Nigerians, school owners and government in the study area.
- Provision of technological gadgets to students to boost their research culture, thereby creating a competitive balance between students in the study area and their counterpart in other parts of the world.
- General repositioning and training of students towards becoming self employed after their school years, through various skills they imbibed through technology use in their secondary schools.
- Schools in the study area must maintain the stipulated students to teacher ratios for an effective teaching and learning process.
- Both students and teachers should be properly trained on how to use and repairs gadgets for effective and smooth learning process.

Conclusion

Technology use in teaching and learning had become a way of life to many pupils and students in the advance countries in the world, where they can read, interact with gadgets for effective learning process. Such system should be adopted in the study area so that our children's potentials shall be realize and maximize in due time.

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