

Investigation of The Availability and Functionality of ICT Facilities in Ondo State Secondary Schools for Effective Teaching and Learning of Science Subjects

AUTHOR(S): OLOJO Jethro Oludare (Ph.D)

Abstract:

The study evaluated the availability, functionality, and utilization of Information and Communication Technology (ICT) facilities in secondary schools in Ondo State, Nigeria, in order to achieve quality learning outcomes. It also looked on teachers' abilities to use ICT facilities to enhance scientific teaching and learning. The data was collected and analysed using a survey research methodology and a quantitative technique. To accomplish this, the researchers devised and presented a structured questionnaire to teachers from Ondo State's three senatorial districts. The sample for the study was chosen using a multistage selection process that included simple random and selective sampling procedures. One hundred and fifty copies of the questionnaire was distributed, with 149 (99.33%) of them being returned. Three research questions and two research hypotheses guided the investigation. The hypotheses were tested using the Pearson Product Moment Correlation statistic at a significance threshold of 0.05 using SPSS version 20, and the research questions were evaluated using frequency counts and percentages. According to the report of this study, scientific teachers in Ondo State have employed ICT to teach and study science topics, however the facilities in these schools are poor. The survey also discovered that many of these schools' ICT facilities were not being used to their full potential because they were in poor condition. The study also discovered that science teachers in the investigated area lack the necessary skills to use ICT services. As a result, the researcher recommended that governments at all levels supply ICT facilities to

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all schools in Ondo State, ensuring that ICT is properly incorporated into all teaching and learning processes. It was also suggested that teachers be encouraged to participate in both pre-service and in-service training on a regular basis. Furthermore, ICT professionals at the state's secondary schools should develop a maintenance culture so that damaged ICT equipment can be repaired before it becomes completely useless.

Keywords: ICT Facilities, Teaching and Learning, Science Subjects, Secondary Schools, Availability and Functionality,

About Author

Author(s):

OLOJO Jethro Oludare (Ph.D)
Department of Science Education,
Bamidele Olumilua University of Education, Science and Technology,
Ikere Ekiti, Nigeria



Introduction

The world we are living in is always transforming. What is present in one day may never be there the next. Imagine what has happened during Covid-19! The advent of Information and Communication Technology (ICT) has now permeated and transformed many aspects of our lives; education inclusive; to the extent that we now live in atmosphere dominated by technology, which is itself consumer-driven (Agim, Iroeze, Osuji & Obasi-Haco, 2018).

Whatever perspective we take on ICT's presence, there is no denying the fact that it is an integral part of our lives and will continue to be so. We no longer need to leave our homes or even our rooms to see some form of ICT in our daily lives. Whether it's a computer, plasma TV, or cell phone, we all have them in some way or another. As ICT users, people in today's society all aspire to the same thing: to live a connected life. As a result, ICT has become a lifestyle choice for a large portion of the population. Furthermore, this way of life is changing how we communicate, accelerating consumerism, and changing how we interact and receive information (Ademiluyi, 2019).

As it comes to more and more aspects of our lives, ICTs will continue to play a vital role in our future. It will continue to evolve and change because we, as customers, enjoy having options. We shall continue to use ICT for personal growth, creativity, and joy, consumption, and wealth (Semenov, 2005). As a result, it is critical that our students engage with ICT in order to learn 21st-century skills, increase their ICT capability and literacy, and improve their academic performance levels and prepare themselves for an integrated society dominated by ICT advancements in order to understand how to use ICT as a tool for lifelong learning. Advantages of using ICT for teaching and learning are numerous. For example, with the introduction of ICT to Education, time and space are no longer impediments to learning. People now employ a wide range of computing and communications technologies to provide learning possibilities beyond the time and place limits of the traditional classroom in what is now often known as dispersed learning. In reality, what is today known as e-learning, blended learning, or web-based learning programs has transformed the concept of distance learning. Different teaching methods that were previously difficult for human instructors to use have now become available because of these technologies. ICT has aided in the revolutionisation of education. Teaching, learning, assessment, and even research have all changed as a result of this. Nigeria issued an IT Policy in 2001 after realizing the value of utilizing ICT.

Aduwa-Ogiegbaen and Iyamu (2005) opined that more than ninety percent of Nigerian public schools do not have computers in their classrooms. This means that in most Nigerian secondary schools, the chalkboard and textbook still dominate classroom activities. According to Akuiolu and Olibie (2007), ICT facilities include phone, fax, and video conferencing, as well as electronic whiteboards. These resources should be provided because they have a significant impact on teaching and learning. According to research (Davies & Desforges, 1997; Osadobor, 2008), using ICT as intellectual multi-tools can dramatically improve learning quality.

The rapid advancement of Information and Communication Technologies (ICTs) has resulted in changes that have an impact on many elements of our society and are becoming increasingly vital in our everyday lives. The impact can be seen in the changes it has brought to human day-to-day activities. One of the sectors that has benefited the most from these improvements is education. Time and space are no longer impediments to learning. People can now employ a wide range of computing and communications technologies to provide



learning possibilities beyond the time and place limits of the traditional classroom in what is now often known as dispersed learning. In reality, what is today known as e-learning, blended learning, or web-based learning programs has transformed the concept of distance learning. Different teaching methods that were previously difficult for human instructors to use have now become available because to these technologies. In the following statement, the Federal Republic of Nigeria (2004) acknowledged the importance of ICT as a tool and resource for enhancing knowledge: "Government shall provide necessary infrastructure and training for the integration of ICT in advancing knowledge and skills in the modern world" The extent to which the good intention captured in the statement has been accomplished leave much to be desired.

According to Ajayi (2008), the effective use of ICT in teaching and learning is based on the availability of these facilities and the teachers' competence to use them. Most secondary schools in Ondo state, according to observations, lack the basic ICT resources, thereby limiting teachers' ability to use them for teaching and learning. Lack of qualified computer literate teachers, poor functioning status of ICT facilities and equipment, intermittent power supply, and insufficient funding are all hurdles that could limit efficient use of ICT facilities for the teaching and learning of scientific subjects in secondary schools. As a result, it is necessary to carry out investigation into the availability of these facilities and equipment, their level of functionality, and the teachers' ability to use the ones that are available; this is the study's fulcrum.

Based on the identified research gaps and the problem description, it is believed that more research into the availability and functionality of ICT facilities for teaching and learning, as well as science teachers' abilities to use the ones that are available is necessary. In this regard, the researcher focused at how and to what extent secondary schools in Ondo state have adopted ICT, whether basic facilities required for effective teaching and learning of science subjects are available in schools, the degree of functionality of those that are available, and the teachers' ICT literacy level. As a result, the purpose of this study was to look into the availability and effectiveness of ICT facilities in Ondo state secondary schools for successful scientific teaching and learning. The study specifically:

1. investigated whether Ondo State; Nigeria had adequate ICT facilities for effective teaching and learning of Science Subjects in secondary schools;
2. evaluated the functional states of the available ICT facilities;
3. investigated into the ability of science teachers to use the available ICT facilities for effective teaching and learning of their subjects.

Research Questions

1. Are there adequate ICT facilities in Ondo State Secondary Schools for teaching and learning purposes?
2. What is the functionality rate of ICT facilities in Ondo State Secondary Schools?
3. Do teachers have the requisite skills for the use of ICT facilities in Ondo State Secondary Schools?

Research Hypotheses

The following hypotheses guided the study:

Ho1: There is no significant relationship between teachers' academic qualifications and their usage of ICT facilities for teaching of Science Subjects in Ondo State Secondary Schools

Ho2: There is no significant relationship between teachers' years of experience and their usage of ICT facilities for teaching of Science Subjects in Ondo State Secondary Schools

Literature Review

The introduction of ICT has endowed our society with a plethora of new opportunities, resulting in a shift in how individuals think about and approach their tasks. ICT has caused tremendous changes in practically every aspect of human endeavour in both developed and poor countries around the world. The use of ICT in teaching and learning has resulted in a great deal of innovation in the field of education. Students and teachers can explore new ways of learning and teaching; thanks to the use of ICT in education. ICT enables schools to ensure that students have access to curriculum materials both in and out of the classroom, as well as pupils who are learning from home, in hospitals or any other locations outside the classroom. ICT has a potential to broaden educational opportunities. When ICTs are used, learning can occur at any time and in any location. Thanks to ICT, teaching and learning are no longer simply reliant on printed materials or physical interactions between students and teachers. As a result of various exceptional events in our lives, the usage of ICT is becoming increasingly popular. The levels of success of all these advantages are largely dependent on the provision and accessibility to ICTs' infrastructure.

Adeosun (2010) found that the lack of ICT resources and poor infrastructure has for long acted as the wheel in the progress of full – scale implementation of ICT education in Nigeria. In a study conducted by Faboya, Olojo and Aluko (2017) on the level of accessibility and utilisation of ICT among Secondary school teachers in Ekiti State; Nigeria, it was found that some ICT facilities were available in schools but teachers under investigation indicated that they did not have access to internet connectivity, computer aided software and web educational resources. However, on the level of accessibility of ICTs facilities available in the schools, they found out that equipment like computer hardware, office equipment and other electronic teaching equipment received higher rating than computer aided software, internet connectivity, and the like. Therefore, the researchers concluded that teachers under investigation did not have access to and/ or the available facilities were inadequate. The study further revealed that the adoption of ICT was faced with the challenges of lack of teachers' expertise, inadequate knowledge of appropriate software, irregular power supply and reluctance on the part of teachers to change; that will make them incorporate ICT into teaching and learning process. In a study on the availability and utilization, the benefits and challenges of ICT facilities in teaching and learning vocational and technical education in Yobe state technical college, Yobe State; Nigeria, Apagu and Wakili (2015) identified some challenges facing ICT usage for teaching. These include irregular power supply; inadequate computer literate teachers; inadequate ICT facilities; and the likes.

The lack of ICT infrastructure in schools is a problem that is not peculiar to Nigeria. For example, Belay, M. T., Khatete, D. D. W., and Mugo, D. B. C. (2020) found that most of the sampled schools lacked adequate ICT resources such as computers, computer laboratories, projectors, televisions, video players, digital content, and the internet in a study conducted on the availability of ICT resources for teaching and learning Biology in secondary schools in Eritrea's southern region. These resources were insufficient and unavailable for Biology teachers to use in their classrooms. In another research carried out on the ICT facilities, skills usage and problems faced by the students of higher education by Aishah and Zeema (2017), it was found that students had computers and internet facilities at both homes and universities. The study also revealed that students under investigation showed expertise at simple skills like Ms Word, Ms Power Point, Searching and Browsing on the internet, Social Networking, Email, File attachment and Computer Games; but they were less proficient or poor in skills that are more likely improve their academic achievements; such as digital library, discussion forum, and the blogs. They equally found out that students spent more time on the computers



for recreational and other social purposes than academic purpose. They however found that slow speed of computers, poor internet signal, virus threat, poor working condition of computers, incessant load shedding of power, and total lack of access to the internet are major challenges being faced by the majority of the students.

Palak and Walls (2009) investigated whether teachers who often integrate technology and work in technology-rich schools change their beliefs and actions to be more student-centred. Teachers' attitudes about technology, as well as the employment of a variety of instructional tactics, were found to be significant predictors of teacher and student technology use. Similarly, Sang et al (2010) discovered that instructors' attitudes toward ICT were the greatest predictor of future use.

Despite the numerous benefits of ICT in science teaching and learning, it has been noticed that most science teachers in Nigerian secondary schools have not adopted its use. This lack of ICT integration in science teaching and learning is disheartening, resulting in low student morale and interest for the subject. This is due to teachers' use of linguistic and theoretical strategies for teaching and understanding science, which makes it difficult for pupils to grasp some scientific concepts. If this issue is not handled immediately, students may lose interest in science related subjects, resulting in poor performance in the disciplines and, as a result, the majority of students pick interest in non-scientific subjects/courses. Such situation may not be good for technological take -off of the country. As a result, the researchers believe it is critical to explore the use of ICT in science teaching and learning, as well as the availability and functionality of ICT facilities in Nigerian secondary schools and science teachers' capacity to adapt ICT equipment to teaching and learning settings.

Methodology

A descriptive survey design was used in this investigation. A survey research design, according to Sambo (2005), studies a group of people or items by collecting and analyzing data from a small number of individuals or items that are considered representative of the entire group. This method is found to be appropriate for this study because it aims to elicit responses from respondents about their perceptions of the availability and functionality of ICT facilities for science teaching and learning, as well as science teachers' ability to use available ICT facilities for effective teaching of their subjects. The study's participants were all science teachers in Ondo state's senior secondary schools. The subjects for the study were chosen using a multistage sampling method. In the first instance, fifteen schools were chosen for the study using a random sampling approach (five schools were selected from each of the three senatorial districts that make up the state). Following that, a purposive sampling method was used to choose science teachers from each of the schools that had already been chosen for the study. Finally, one hundred and fifty (150) teachers (ten from each of the schools) were chosen for the study using a random selecting process.

For the purpose of data collecting, the researcher designed a well-structured questionnaire based on several perceived qualities of ICT usage for teaching and learning. Sections A and B were the two components of the instrument. Section A contains elements intended at obtaining personal information from respondents, such as Name of School, Sex, and Age - range, Highest Academic Qualification, and Year of Experience. Section B contains items set on a five-point Likert scale with Strongly Agree (4), Agree (3), Disagree (2), Strongly Disagree (1), and Undecided (0) to elicit reactions from respondents on some perceived characteristics on availability, functionality and usage of ICT facilities for effective teaching and learning of science subjects.



Both face and content validity methodologies were used to determine the instrument's validity. These were determined by test and measurement experts from the University of Education, Science and Technology, Ikere – Ekiti's Department of Science Education. The researchers also made certain that the instrument was construct - valid and dependable. The Cronbach Alpha formula was used to achieve this. The estimate was 0.85, which was thought to be a high and meaningful enough index for this type of investigation. The data gathered was analyzed using both descriptive and inferential statistic. The data was examined descriptively using frequency counts and percentages, and the Pearson Product Moment correlation analysis was employed to assess the hypotheses made at a significance level of 0.05.

Results

Research Question 1: Are there adequate ICT facilities in Ondo State Secondary Schools for teaching and learning purposes?

Table 1: Descriptive analysis showing adequacy of ICT facilities

S/N	Availability of ICT facilities	SA (%)	A (%)	D (%)	SD (%)	UD (%)	MEAN	SD
1.	There are enough ICT facilities in my school for teaching and Learning of Sciences	18(12.1)	27(18.1)	52(34.9)	47(31.5)	05(3.5)	2.04	1.058
2.	There is Internet access for Teaching and Learning of Sciences in my school	14(9.4)	41(27.5)	48(32.2)	43(28.9)	03(2.0)	2.13	1.004
3.	There is stable power supply to operate ICT facilities in my school	23(15.4)	36(24.2)	40(26.8)	48(32.2)	02(1.3)	2.20	1.097
4.	There are camcorders/digital cameras for the teaching and learning in my school	13(8.7)	23(15.4)	54(36.2)	57(38.3)	02(1.3)	1.92	.969
5.	A system is meant for each student in my school during Practical class.	17(11.4)	27(18.1)	41(27.5)	60(40.3)	04(2.7)	1.95	1.074

Table 1 showed the responses of scientific teachers to availability and adequacy of ICT facilities in Secondary Schools. The table has a mean range of (1.92 – 2.20) and the standard deviation of (0.969 – 1.097). The analysis of item indicated that (30.2%) of the respondents indicated that there are enough ICT facilities in their schools for teaching and learning of science subjects, (66.4%) disagreed with the claim while (3.5%) were neutral. Also, the analysis indicated that (36.9%) of the respondents agreed that there was internet access for teaching and learning the sciences in their schools; (61.1%) of the participants said that internet access was not available for teaching and learning purposes in their schools while (2.0%) were neutral to the claim. The result of the analysed items further showed that (39.6.2%) of the participants said that there was stable power supply to operate ICT equipment in their schools. However, (59.9%) of them disagreed with this claim while (1.3%) remained indifference. The analysis of the items also revealed that (24.1%) of the respondents agreed that there were camcorders/digital cameras for the teaching and learning in their schools, (74.5%) said that such ICT equipment do not exist in their schools for teaching and learning of the sciences while (1.3%) failed to take any position. The table also showed that (29.5%) of the participants claimed that a computer system was assigned to one student during practical classes, (67.8%) said that more students were allocated to a computer system during practical classes in their

schools while (2,7%) of the participants were neutral to this claim. From the foregoing, one could submit that ICT facilities were not adequate in secondary schools under investigation.

Research Question 2: What is the functionality rate of ICT facilities in Ondo State Secondary Schools?

Table 2: Descriptive analysis showing the functionality rate of ICT facilities

S/N	Functionality of ICT Facilities	SA (%)	A (%)	D (%)	SD (%)	UD (%)	MEAN	SD
1.	The available ICT facilities meant for Teaching and Learning of Sciences are functioning optimally	19(12.8)	44(29.5)	28(18.8)	49(32.9)	09(6.00)	2.10	1.173
2.	There is 24/7 internet access in my school	20(13.4)	25(16.8)	58(38.9)	42(28.2)	04(2.70)	2.10	1.045
3.	There is a standby generator to power ICT equipment anytime power is off	20(13.4)	55(36.9)	32(21.5)	39(26.2)	03(2.00)	2.34	1.069
4.	Virtual or e - library in my school is functioning well	12(8.1)	43(28.9)	40(26.8)	48(32.2)	06(4.0)	2.05	1.048
5.	There are technicians on ground to repair ICT facilities anytime they malfunction.	12(8.1)	44(29.5)	43(28.9)	42(28.2)	08(5.4)	2.07	1.057

Table 2 showed the responses of respondents to the degree of the functionality of ICT facilities in Secondary Schools investigated. The table has a mean range of (2.05 – 2.34) and standard deviation of (1.045 – 1.173). The analysis of the items revealed that (42.3%) of the respondents supported the claim that the available ICT facilities which were meant for teaching and learning of the Sciences were functioning optimally, (51.7%) of them disagreed with the claim while (6.0%) were undecided. The table equally revealed that of the total respondents, (30.2%) claimed that there was uninterrupted supply of internet in their schools, (67.1%) disagreed with this claim while (2.7%) were undecided. Also, from the table, one could see that (50.3%) of all the respondents indicated that there were standby generators to power ICT equipment anytime power was off, (47.7%) said that there were no such facilities in their schools while (2.0%) remained neutral. The analysis of items in the table also showed that (37.6%) of the entire respondents indicated that virtual libraries in their schools were functioning very well. However, (59.0%) said that virtual libraries in their schools were not functioning well while (4.0%) were indifferent. The table also showed that (37.6%) of the respondents agreed that there were always technicians on ground to repair ICT facilities anytime they malfunctioned; (57.1%), there were no technicians on ground to perform such duties, whereas (5.4%) remained neutral. From the responses above, one could deduce that the ICT facilities that were available in the schools under investigation were not functioning to the fullest.

Research Question 3: Do teachers have the requisite skills for the use of ICT facilities in Ondo State Secondary Schools?

Table 3: Descriptive analysis showing the requisite skills for the use of ICT facilities

S/N	Teachers' Ability to use ICT facilities	SA (%)	A (%)	D (%)	SD (%)	UD (%)	MEAN	SD
1.	Teachers of Sciences in my School have their own ICT equipment	24(16.1)	31(20.8)	57(38.3)	20(13.4)	17(11.4)	2.17	1.193
2.	Science Teachers use ICT facilities during teaching	30(20.1)	30(20.1)	69(46.3)	15(10.1)	05(3.4)	2.44	1.09
3.	Science teachers operate their own Computer System when using ICT facilities for Teaching and Learning	04(2.70)	31(20.8)	87(58.4)	22(18.8)	05(3.4)	2.05	0.774
4.	Teachers of Sciences send online assignments to their students	17(11.4)	31(20.8)	73(49.0)	21(14.1)	07(4.7)	2.20	0.979
5.	Teachers of Sciences in my school can compete with their counterparts anywhere in the world when it comes to the use of ICT facilities for teaching and Learning	15(10.1)	54(36.2)	36(24.2)	26(17.4)	18(12.1)	2.15	1.188

Table 3 depicted science teachers' responses to their possession of right expertise for using ICT facilities in secondary schools. The standard deviation range is (0.774 – 1.188) while the mean range is (2.05 – 2.44). According to the analysis of the items, (36.9%) of the respondents reported that science instructors in their schools have personal ICT equipment, while (51.7%) indicated that science teachers in their schools do not have personal ICT equipment. However, (11.4%) of participants were unconcerned about the assertion. The table also revealed that (40.2%) of the total respondents agreed with the claim that science teachers in their schools use ICT facilities during their classes; (56.4%) disagreed with the claim; and (3.4%) were undecided. The table also revealed that (23.5%) of respondents said that scientific teachers operate ICT facilities themselves during their classes, whereas (77.2%) claimed that other staff operated ICT facilities for them during science courses; and (3.4%) disagreed with the statement. According to the results of the item analysis, (32.2 %) of scientific subject teachers send online assignments to their students, (63.1 %) of science subject teachers in their schools do not send online assignments to their students, and (4.7%) of respondents declined to comment.

The analysis also indicated that (46.3%) indicated that Science teachers in their schools can compete favourably with their counterparts anywhere in the world when it comes to the use of ICT facilities for teaching and learning. However, (41.6%) disagreed with the claim while (12.1%) were indifferent to the claim. From the analysis of the data, it was also found out that (65.6%) of the respondents claimed they must visit at least a social network site in a day; (31.7%) said they can do without visiting any social network platform in a day while (2.7%) of the respondents showed indifference. The summary of the analysis showed that science teachers in the area under investigation do not have requisite skills for use of ICT facilities.

Test of Hypotheses

Ho1: There is no significant relationship between teachers' academic qualifications and their usage of ICT facilities for teaching of Science Subjects in Ondo State Secondary Schools

Table 4: Relationship between teachers' academic qualifications and their usage of ICT facilities

		Academic Qualification	Usage of ICT facilities
Academic Qualification	Pearson Correlation Sig. (2-tailed)	1	-.110 .181
	Sum of Squares and Cross - Products	68.577	-13.195
	Covariance	.463	-.089
	N	149	149
Usage of ICT facilities	Pearson Correlation Sig. (2-tailed)	-.110 .181	1
	Sum of Squares and Cross - Products	-13.195	208.752
	Covariance	-.089	1.410
	N	149	149

** . Correlation is significant at the 0.05 level (2-tailed).

Table 4 showed the correlation between academic qualifications of science teachers and their ability to use ICT facilities in secondary schools. From the table, it could be seen that the Pearson correlation value is (-0.110) while the table value at the 95% level of confidence is (3.84). The covariance of academic qualifications of science teachers and their ability to use ICT facilities is (0.463) and (1.410) respectively. Since the Pearson correlation calculated value is less than the table value, the hypothesis of no significant influence should not be upheld. This implied that the academic qualifications of teachers have significant influence on their ability to use ICT facilities to teach science subjects in senior secondary schools.

Ho2: There is no significant relationship between teachers' years of experience and their usage of ICT facilities for teaching of Science Subjects in Ondo State Secondary Schools

Table 5: Relationship between teachers' years of experience and their usage of ICT facilities

		Years of Experience	Usage of ICT facilities
Years of Experience	Pearson Correlation Sig. (2-tailed)	1	-0.148 .072
	Sum of Squares and Cross - Products	194.161	-29.799
	Covariance	1.312	-.201
	N	149	149
Usage of ICT facilities	Pearson Correlation Sig. (2-tailed)	-0.148 .072	1
	Sum of Squares and Cross - Products	-29.799	208.752
	Covariance	-.201	1.410
	N	149	149

Table 5 showed the correlation between years of experience of science teachers and their ability to use ICT facilities in secondary schools. From the table, it could be seen that the Pearson correlation value is (-0.148) while the table value at the 95% level of confidence is (3.84). The covariance of years of experience of science teachers and their ability to use ICT facilities is (1.312) and (1.410) respectively. Since the Pearson correlation calculated value is less than the table value, the hypothesis of no significant influence should not be upheld. This implied that the years of experience of science teachers has significant influence on their ability to use ICT facilities to teach science subjects in senior secondary schools.

Discussion of Findings

The study found that senior secondary schools in Ondo State had adopted ICT for teaching and studying science topics, but that the facilities in these schools were insufficient. The survey also indicated that the ICT facilities that were available in these schools were not being used to their full potential. Furthermore, the study revealed that science teachers in the investigated area lack the necessary abilities to use ICT services for teaching and learning purposes. The concept that teachers' academic qualifications have no bearing on their use of ICT facilities for teaching Science subjects in Senior Secondary Schools was debunked by the findings. This implied that teachers' academic credentials have a considerable impact on their capacity to use ICT to teach science topics in senior secondary schools. The findings also revealed that science teachers' years of experience had a substantial impact on their ability to use ICT to teach science topics in senior secondary schools.

The findings of this study agreed with those of Adeosun (2010), who discovered that a lack of ICT resources and poor infrastructure in Nigerian schools have long acted as a roadblock to the country's full-scale implementation of ICT education, and Faboya, Olojo, & AlukO (2017), who discovered that while some ICT facilities were available in schools, teachers lacked access to internet connectivity, computer aided software, web educational resources, and other resources.

Conclusion

The study found that scientific teachers in Ondo State have used ICT for teaching and studying science issues, but that the facilities in these schools were inadequate. The survey also found that because many of the ICT facilities in these schools were in poor condition, they were not being used to their full potential. The research also found that science teachers in the studied area lack the requisite skills to use ICT services. Teachers' academic credentials have a significant impact on their ability to use ICT to teach science themes in senior secondary schools, according to the study. Furthermore, the study's results indicated that science teachers' years of experience influenced their capacity to use ICT to teach science concepts in senior secondary schools.

Recommendations

Guided by the outcomes of this study, the following recommendations were made:

1. Governments at all levels should supply ICT facilities to all secondary schools in Ondo State.
2. The state should encourage teachers to include ICT into their teaching and learning activities.
3. Basic ICT skills such as Ms Excel, Windows with file management, Photoshop, discussion forums and blogs, and rudimentary application of SPSS in computer courses should be taught to secondary school teachers in the state.
4. At all levels of education in the state, ICT facilities should be completely incorporated into the teaching and learning process.



5. Governments at all levels should provide pre-service and in-service training and support for secondary school teachers to enable them use ICT teaching software.
6. A maintenance culture should be developed in the state's secondary schools.

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