

AVAILABILITY, ACCESSIBILITY AND UTILISATION OF INFORMATION AND COMMUNICATION TECHNOLOGY FACILITIES AMONG SECONDARY SCHOOL TEACHERS IN EKITI AND OSUN STATES, NIGERIA

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Abstract

This study investigated the availability, accessibility and utilisation of ICT facilities for instructional delivery among secondary school teachers in Ekiti and Osun states, Nigeria. The population for the study comprised all secondary school teachers in Ekiti and Osun states. The sample consisted of 640 teachers from each state. Multistage sampling procedure was adopted to select the sample. Simple random sampling technique was first used to select ten Local Governments from each state. Secondly, simple random sampling technique was used to select two schools from each Local Government to make twenty schools in a state. Simple random sampling was also used to select 32 teachers from each school used for the study to make a total of 640 teachers in each state. The instrument for the study is a self-designed questionnaire titled Availability, Accessibility and Utilisation of Information and Communication Technology Facilities Questionnaire (AALICTFQ). The validity of the instrument was ensured by experts in Social Studies, Educational Management and Test and Measurement. The reliability of the instrument was ascertained through test-re-test method and the reliability coefficient of 0.81 was obtained. Three research questions were raised for the study and three hypotheses formulated were tested at 0.05 level of significance. The mean score of 1.50 derived from the rating scale was used as cut-off point to answer the research questions while t-test statistical tool was used to analyse the research hypotheses. The study revealed that there was no significant difference between availability and accessibility of ICT facilities in Ekiti and Osun states. The study also revealed that few teachers make use of ICT facilities for teaching and learning in Ekiti and Osun states. The study concluded that in availability, inaccessibility and lack of adequate knowledge of ICT facilities in Ekiti and Osun states have negative effects on education in both states. It was recommended that ICT facilities should be made available and accessible in both states. Secondary school teachers in Ekiti and Osun states should be ICT literate for effective and efficient utilisation of ICT tools to enhance instructional delivery in schools.

Key words: ICT facilities, availability, accessibility, utilisation, instructional delivery.

Introduction

Information and Communication Technology (ICT) is a universal and a broad term used to qualify communication. It is a golden term used for communication facilities such as radio, television, computer, flash drive, player, tape recorder, video recorder, camera, slide, microphone, film projector, over-head projector, internet services, mobile and cellular phones, satellite, e-mail, g-mail, soft ware, hard ware, e-learning, e-transact, e-computation, e-

examination, e-library, e-conference and other technological facilities or terms used in the process of interpretation, sending, receiving and disseminating information online. Akele (2013) noted that ICT is one of the globally acknowledged learning and teaching space today as well as one of the key propellants of globalization. Nyambani and Nzuki (2014) noted that ICT has created a turning point in educational system and it has made the whole world witness a revolution in information and communication planet.

Despite the importance of ICT to the education system, some Nigerian schools are still using traditional methods of teaching and learning. However, since the students were not allowed to participate actively in lessons through this method, effective teaching/learning cannot take place and that could not be in the interest of students, parents, education sector and the nation generally. Jegede (2013) advocated for the review of teaching /learning activities in Nigerian secondary schools as most of the teachers in public secondary schools still practice the traditional method of "chalk and talk" in the classroom. Jegede (2013) stressed further that the method of teaching is fast becoming obsolete since it does not allow free interaction between the teacher and students. Onajite and Aina (2017) noted that Information and Communication Technologies are been utilized in education to replace the traditional method of teaching which is a largely teacher-centre approach.

World Bank (2008) asserted that low education and literacy levels, lack of awareness about the capabilities to develop the use of ICT represent significant obstacles to the adoption of ICT even when the infrastructures are available. Roblyer (2013) submitted that software empowers teachers rather than replacing them. According to Ezeuwa (2014), for education to be effectively managed in Nigeria, the challenges of ICT in the education system should be tackled for the system to be relevant across the globe. The researcher equally believed that the quality and quantity of human resources available in the country should be linked with functional education. Oso (2015) believed that many functions of ICT provide tremendous flexibility in presentation of teaching and learning with instructional materials. Oso (2015) mentioned that computer literacy could be measured through the knowledge and ability to understand the language of computer, use it with other gadgets efficiently and effectively.

The significance of ICT are so plentiful, marvelous, implausible, astonishing and as such cannot be underrated that Osadebe, Onyebuchi and Okide (2014) highlighted that literacy currently should involve literacy of connectedness, literacy of creativity and computer literacy. They explained that literate individuals should be able to connect and derive meaning from symbols, communicate and cooperate with others, create new meaning to make new concepts and manipulate information and communication equipment to achieve a purpose. ICT, according to Adedayo (2016), is a complex and heterogeneous set of application and also involves innovations in scientific endeavours aimed at making passage of information easier, faster and more effective. Adedayo (2016) stressed that the artifact of ICT which serves as tool for information acquisition, processing, integration and analysis as well as mediating tool in communication is the computer.

According to Onajite (2016), ICT is a major valuable technology for teaching/learning and research in education. Onajite (2016) stressed that many countries are adopting utilization of ICT as a means of improving the quality of education and meeting up with their educational goals and objectives. Darling in Popoola, Ekundayo and Ekundayo (2017) asserted that the use of ICT is a valuable strategic tool that when used properly could modernized secondary education. He stressed that classroom teachers with adequate and professional skills in ICT utilization will definitely improve their students' academic standard. Onajite and Aina (2017) acknowledged that there are a lot of gains in using ICT to deliver instruction in education. Onajite and Aina (2017) encouraged teachers to use various ICT applications and computer assisted programmes such as internet, web-browser, multimedia, e-mails and Microsoft packages in the teaching and learning.

In the same vein, Nwite (2007) acknowledged that ICT are of immense benefits to the teachers and make teaching less cumbersome and interesting. Despite that, the success of the integration of ICT in the school system depends largely on the ability, capability and competence of teachers and their disposition towards the technology. Ofodu (2007) noted that high percentage of teachers do not have e-mail addresses and do not search internet for educational materials to improve themselves. Ajayi and Ekundayo (2009) attributed inability of most secondary school teachers to have access to computer and use it during teaching process to financial constraint. Other factors are limited ICT facilities, lack of support, poor internet services and constant power failure in Nigeria (Ajayi 2008, Onwuagboke, Singh and Onwuagboke, 2014).

According to Ajayi (2008), teachers can carry students beyond traditional limit and ensure their active participation in the teaching and learning processes. Mangal and Mangal (2011) noted that ICT occupied a unique position in the teaching and learning of all school subjects especially those that requires logical and systematic study. Osakwe (2012) posited that ICTs in education assist in facilitating learning process for both teachers and students in the classroom. Amadi, Ucheh and Edward (2014) contended that the importance of ICT in the classroom situation cannot be overemphasized in the provision of essential learning materials to cater for students' individual differences and guarantees unlimited access of teachers to relevant information and development in their areas of specialization. Abdu-Raheem (2016) acknowledged that the use of ICT with other methods of teaching will go a long way to improve the quality of teaching and learning in schools.

In addition, Akubuilu (2007) asserted that funding is a major constraint to making Nigerian schools ICT compliance. Onajite and Aina (2017) noted that inadequate basic infrastructure, lack of connectivity, lack of hardware and software, high internet fees, lack of technical support, fund and lack of space for installation of computer are serious problems facing the use of ICT for teaching and learning in schools. Popoola, Ekundayo and Ekundayo (2017) asserted that most secondary schools in Ondo state lack fund to purchase computers, literate teachers in ICT and irregular power supply. Onajite and Aina (2017) also confirmed that majority of teachers in Federal Government Colleges do not have needed competence in basic computer operations.

Furthermore, Tella (2011) posited that Nigerian teachers have been unable to find effective ways to use technology in their classrooms or any other aspects of their teaching and learning life. However, Osakwe (2012) observed that teachers do not usually utilise the ICT materials in schools. Amuche and Iyekekpolor-Solomon (2014) confirmed in their study that majority of the teachers were rated low in the ICT competency and this is an indication that teachers are not well equipped to integrate ICT to the teaching and learning in schools. Dike (2014) also noted that most teachers cannot search for new information and create new knowledge through the use of web search engines like Google, Maama and others. However, Oso (2017) agreed that not all teachers are willing to introduce ICT into their classrooms.

Statement of the Problem

It has been observed that Information and Communication Technology facilities are not available and accessible in secondary schools in Ekiti and Osun states. It was observed that the available ones were not often put into effective use. Observations and experience also indicated that

majority of teachers in Ekiti and Osun states are not ICT literate which made it difficult for most of the teachers to incorporate the use of ICT facilities to teaching and learning in schools. It was also observed that most of the ICT facilities available were not accessible or adequately utilized for teaching and learning in secondary schools. Despite the usefulness of ICT in the classroom, the application and use of ICT in most schools in Nigeria is low and at slow pace (Oyelekan, 2008). This study therefore investigated the availability, accessibility and utilisation of ICT facilities in secondary schools in Ekiti and Osun states, Nigeria.

Purpose of the Study

The purpose of this study is to investigate the availability, accessibility and utilisation of ICT facilities for teaching and learning in secondary schools in Ekiti and Osun states.

Research Questions:

In view of the problem of this study, the following research questions have been raised.

1. Are ICT facilities available for teaching and learning in Ekiti and Osun states secondary schools?
2. Are the ICT facilities accessible for teaching and learning in Ekiti and Osun states secondary schools?
3. Do secondary school teachers in Ekiti and Osun states utilise ICT facilities for teaching and learning?

Research Hypotheses

The following research hypotheses have been generated in the study.

1. There is no significant difference between availability of ICT

facilities in secondary schools in Ekiti and Osun states

2. There is no significant difference between accessibility of ICT facilities in secondary schools in Ekiti and Osun states.
3. There is no significant difference between utilisation of ICT facilities among secondary school teachers in Ekiti and Osun states.

Methodology

A descriptive research design of the survey type was adopted for the study. The population for the study comprised all Secondary School teachers in Ekiti and Osun states while the sample consisted of 460 teachers selected from 20 schools in 10 Local Government Areas of Ekiti and Osun states respectively. Multistage sampling procedure was applied for selection of the sample. The instrument for the study is a self-designed questionnaire titled Availability, Accessibility and Utilisation of Information and Communication Technology Facilities Questionnaire (AAUICTFQ). The validity of the instrument was ascertained by Social Studies, Educational Management and Tests and Measurement experts. The reliability of the instrument was ensured through test-re-test method. The instrument was administered on 30 students from two schools that were not used for the study. After two weeks, the instrument was re-administered again on the same sets of students. The scores of the two sets were correlated using Pearson Product Moment Correlation Coefficient Analysis and the correlation coefficient of 0.81 was obtained. The mean score of 1.50 derived from the rating scale was used as cut-off point to answer the research questions while t-test statistical tool was used to test the research hypotheses, at 0.05 level of significance.

Research Question 1

Are ICT facilities available for teaching and learning in Ekiti and Osun state secondary schools?

Table 1: Availability of ICT Facilities in Ekiti and Osun State Secondary Schools.

| S/N | ICT Facilities | Available | | Not Available | | Mean | Remark |
|-----|---------------------|-----------|------|---------------|-------|------|--------|
| | | F | % | F | % | | |
| 1 | Radio Set | 304 | 47.5 | 336 | 52.5 | 1.52 | A |
| 2 | Photocopy machine | 424 | 66.3 | 216 | 33.8 | 1.66 | A |
| 3 | Computers | 519 | 81.1 | 121 | 18.9 | 1.81 | A |
| 4 | Generators | 580 | 90.6 | 60 | 9.4 | 1.91 | A |
| 5 | Flash drives | 488 | 76.3 | 152 | 23.8 | 1.76 | A |
| 6 | Players | 184 | 28.8 | 456 | 71.3 | 1.29 | NA |
| 7 | Tape recorders | 120 | 18.8 | 520 | 81.3 | 1.19 | NA |
| 8 | Video recorder | 60 | 9.4 | 580 | 90.6 | 1.09 | NA |
| 9 | Cameras | 90 | 14.1 | 550 | 85.9 | 1.14 | NA |
| 10 | Internet services | 181 | 28.3 | 459 | 71.7 | 1.28 | NA |
| 11 | Slides | 31 | 4.8 | 609 | 95.2 | 1.05 | NA |
| 12 | Film projectors | 60 | 9.4 | 580 | 90.6 | 1.09 | NA |
| 13 | Televisions | 396 | 61.9 | 244 | 38.1 | 1.62 | A |
| 14 | Overhead projectors | - | - | 640 | 100.0 | 1.00 | NA |
| 15 | Microphones | 211 | 33.0 | 429 | 67.0 | 1.33 | NA |

N=640, A-Available; NA-Not Available

Table 1 presents availability of ICT facilities in secondary schools in Ekiti and Osun states. Based on cut-off point of 1.50, the ICT facilities with Mean scores below the cutoff point are categorized as 'Not Available' (NA) while those with cut-off points of 1.50 and above were grouped under 'Available' (A) ICT facilities in secondary schools in the two states. However, Radio sets, Photocopy machines, Computers,

Generators, Flash drives and Televisions are available while Players, Tape recorders, Video recorders, Cameras, Internet services, Slides, Film projectors and Microphones are not available in both states.

Research Question 2

Are available ICT facilities accessible for teaching and learning in Ekiti and Osun States?

Table 2: Accessibility of ICT Facilities for Teaching and Learning in Ekiti and Osun States.

| S/N | ICT facilities | Accessible | | Not Accessible | | Mean | Rank |
|-----|---------------------|------------|------|----------------|------|------|------|
| | | F | % | F | % | | |
| 1 | Radio sets | 334 | 52.2 | 306 | 47.8 | 1.52 | A |
| 2 | Photocopy machines | 454 | 70.9 | 186 | 29.1 | 1.71 | A |
| 3 | Computers | 549 | 85.8 | 91 | 14.2 | 1.86 | A |
| 4 | Generators | 610 | 95.3 | 30 | 4.7 | 1.95 | A |
| 5 | Flash drives | 518 | 80.9 | 122 | 19.1 | 1.81 | A |
| 6 | Players | 214 | 33.4 | 426 | 66.6 | 1.33 | NA |
| 7 | Tape recorders | 150 | 23.4 | 490 | 76.6 | 1.23 | NA |
| 8 | Video recorders | 90 | 14.1 | 550 | 85.9 | 1.14 | NA |
| 9 | Cameras | 120 | 18.8 | 520 | 81.3 | 1.19 | NA |
| 10 | Internet services | 211 | 33 | 429 | 67.0 | 1.33 | NA |
| 11 | Slides | 92 | 14.4 | 548 | 85.6 | 1.14 | NA |
| 12 | Film projectors | 90 | 14.1 | 550 | 85.9 | 1.14 | NA |
| 13 | Televisions | 426 | 66.6 | 214 | 33.4 | 1.67 | A |
| 14 | Overhead projectors | 30 | 4.7 | 610 | 95.3 | 1.05 | NA |
| 15 | Microphones | 241 | 37.7 | 399 | 62.3 | 1.38 | NA |

N=640, A-Accessible, NA-Not Accessible

Table 2 reports the accessibility of the available ICT facilities in secondary schools in Ekiti and Osun states. Using the cut-off point of 1.50, the ICT facilities with Mean Scores of 1.50 and above were categorized as accessible ICT facilities in Ekiti and Osun States while those with Mean Scores below the cut-off points were grouped under ICT facilities that are not accessible. Therefore, Radio sets, Photocopy

machines, Computers, Generators, Flash drives and Televisions are accessible while Players, Tape recorders, Video recorders, Cameras, Internet services, Slides, Film projectors and Microphones are not accessible in both states.

Research Question 3

Do Secondary school teachers in Ekiti and Osun States utilise ICT facilities for teaching and learning?

Table 3: Utilisation of ICT Facilities in Ekiti and Osun States.

| S/N | ICT facilities | Utilized | | Not utilized | | Mean | Rank |
|-----|---------------------|----------|------|--------------|------|------|------|
| | | F | % | F | % | | |
| 1 | Radio sets | 334 | 52.2 | 306 | 47.8 | 1.52 | U |
| 2 | Photocopy machines | 454 | 70.9 | 186 | 29.1 | 1.17 | NU |
| 3 | Computers | 549 | 85.8 | 91 | 14.2 | 1.86 | U |
| 4 | Generators | 610 | 95.3 | 30 | 4.7 | 1.95 | U |
| 5 | Flash drives | 518 | 80.9 | 122 | 19.1 | 1.81 | U |
| 6 | Players | 214 | 33.4 | 426 | 66.6 | 1.33 | NU |
| 7 | Tape recorders | 150 | 23.4 | 490 | 76.6 | 1.23 | NU |
| 8 | Video recorders | 90 | 14.1 | 550 | 85.9 | 1.14 | NU |
| 9 | Cameras | 120 | 18.8 | 520 | 81.3 | 1.19 | NU |
| 10 | Internet services | 211 | 33.0 | 429 | 67.0 | 1.33 | NU |
| 11 | Slides | 92 | 14.4 | 548 | 85.6 | 1.14 | NU |
| 12 | Film projectors | 90 | 14.1 | 550 | 85.9 | 1.14 | NU |
| 13 | Televisions | 426 | 66.6 | 214 | 33.4 | 1.67 | U |
| 14 | Overhead projectors | 30 | 4.7 | 610 | 95.3 | 1.05 | NU |
| 15 | Microphones | 241 | 37.7 | 399 | 62.3 | 1.38 | NU |

N=640, U-Utilised, NU-Not Utilised

Table 3 presents the utilisation of available and accessible ICT facilities among secondary schools teachers during teaching and learning in Ekiti and Osun states. Using the cut-off point of 1.50, the ICT facilities with Mean Scores of 1.50 and above were categorized as 'Utilized' (U) in secondary schools in Ekiti and Osun States while those with Mean Scores below the cut-off points were grouped under 'Not Utilised' (NU) ICT facilities. However, Radio sets, Computers, Generators, Flash drives and Televisions are utilized while the photocopy machine, Players, Tape recorders, Video recorders, Cameras, Internet services, Slides, Film projectors and Microphones fell under not utilised ICT facilities in secondary schools in the two states.

Hypothesis 1

There is no significant difference between availability of ICT facilities

in secondary schools in Ekiti and Osun states

Table 4: t-test of Availability of ICT Facilities in Secondary Schools in Ekiti and Osun States

| Grou | N | Mean | SD | Df | T | P |
|--------|----|------|-----|----|------|------|
| Ekit | | | | | | |
| i | 64 | 20.7 | 2.0 | | | |
| | 0 | 2 | 5 | 63 | 0.19 | 0.84 |
| | | | | 8 | 3 | 7 |
| Osun | | | | | | |
| | 64 | 20.6 | 2.0 | | | |
| | 0 | 8 | 4 | | | |
| P>0.05 | | | | | | |

Table 4 shows that there was no significant difference between ICT facilities that are available in for teaching and learning in secondary

schools in Ekiti and Osun states ($t=0.193$, $P>0.05$). The null hypothesis is not rejected. There was therefore no significant difference between ICT facilities availability in secondary schools in Ekiti and Osun states. This implies that most of the ICT facilities that are available in Ekiti state are also available in Osun state and vice-versa the facilities that are not available.

Hypothesis 2

There is no significant difference between accessibility of ICT facilities in secondary schools in Ekiti and Osun States.

Table 5: t-test of Accessibility of ICT Facilities in Secondary Schools in Ekiti and Osun States.

| State | N | Mean | SD | Df | T | P |
|--------|----|------|-----|----|------|------|
| Ekiti | 64 | 21.5 | 2.4 | | | |
| Osun | 64 | 21.4 | 2.4 | | | |
| | | | | 63 | 0.36 | 0.71 |
| | | | | 8 | 6 | 4 |
| P>0.05 | | | | | | |

Table 5 shows that there was no significant difference between ICT facilities that are accessibility for teaching and learning in secondary schools in Ekiti and Osun states ($t=0.366$, $P>0.05$). The null hypothesis is accepted. Therefore, there was no significant difference between ICT facilities accessibility in secondary schools in Ekiti and Osun states. ICT facilities are accessible at nearly the same rate in the two states.

Hypothesis 3

There is no significant difference between the utilisation of ICT facilities among secondary school teachers in Ekiti and Osun states.

Table 6: t-test of ICT Utilisation of Secondary School Teachers in Ekiti and Osun States

| State | N | Mean | SD | Df | T | P |
|--------|----|------|-----|----|------|------|
| Ekiti | 64 | 21.1 | 3.3 | | | |
| Osun | 64 | 20.7 | 4.0 | | | |
| | | | | 63 | 1.37 | 0.17 |
| | | | | 8 | 0 | 1 |
| P>0.05 | | | | | | |

Table 6 shows that there was no significant difference between utilization of ICT facilities among secondary school teachers in Ekiti and Osun states ($t=1.370$, $P>0.05$). The null hypothesis is not rejected. There was therefore no significant difference between utilization of ICT facilities among secondary school teachers in Ekiti and Osun states.

Discussion

The study revealed that few out of the numerous ICT facilities that can be used to improve teaching and learning in secondary schools in Ekiti and Osun states were available. The study is in line with Okwudishu (2005) who noted that unavailability of some ICT components in schools hampers teachers' use of ICTs.

The study also discovered that few ICT facilities were accessible for teaching and learning in secondary schools in Ekiti and Osun states. The study is in support of Oso (2017) who posited that inaccessibility of ICT facilities is the major reason why ICT facilities were not commonly utilized for the teaching and learning in schools.

The study showed that many of the ICT facilities that can be used to promote teaching and learning in secondary schools were not utilised. The study is connected with that of Osadebe (2012), Umunadi (2012), Akuzie (2013) and Aina and Onajite (2017) who found that teachers do not often utilise ICT facilities in schools.

The study found a significant relationship between ICT facilities

that are available for teaching and learning in Ekiti and Osun states. Nearly all the facilities that are available in Ekiti state are also available in Osun state. Most of the essential ICT facilities were not available for teaching and learning in Ekiti and Osun states. The study is in agreement with Ogunmogu and Audu (2016) who found that most of the essential ICT facilities were not available for teaching and learning in schools in Egor Local Government Area of Edo state.

The study also discovered that some of the ICT facilities that are available in Secondary Schools in Ekiti and Osun states are not accessible for teaching and learning. Most of the facilities have gone out of use in the school stores where they were kept. The study is in support of the study of Oso (2017) who noted that inaccessibility of technology tools hinder their utilization in secondary schools

The study revealed that many teachers in Ekiti and Osun state Secondary Schools did not utilize ICT facilities during teaching and learning in Ekiti and Osun states. Few of them have knowledge of operating few ICT facilities. The study is related with that of Popoola, Ekundayo and Ekundayo (2017) acknowledged that lack of suitable hardware and software, weak infrastructure, lack of human skill and knowledge in ICT as some of the factors militating against the use of ICT in secondary schools in Nigeria.

Conclusion

The study concluded that ICT facilities are not adequately available in Ekiti and Osun state Secondary Schools. It was noted in the study that the few available ICT facilities in schools in the two states are not accessible for teaching and learning. The study also concluded that most of the teachers in Ekiti and Osun state Secondary Schools did not fully utilise the available ICT facilities.

Recommendations

In view of the implications of the findings of the study for effective instructional delivery in the secondary schools, the following recommendations are considered necessary.

1. Students should participate in provision of essential ICT facilities for teaching and learning in schools
2. Parents should join hands with the schools and government to provide ICT facilities for teaching of the school subjects to enhance learning.
3. Teachers should improvise few ICT facilities they can afford to make their lessons practical and more interesting.
4. Teachers should work hard to improve their ICT literacy level in Ekiti and Osun states to enhance the utilization of the ICT facilities.
5. Government should provide more ICT facilities for teachers to work with to improve their skills in ICT and also promote students' academic performance.
6. Government should enforce thorough monitoring of teachers on the use of ICT facilities for teaching and learning in schools.
7. Government should organize on-the-job training, conferences and workshops for teachers to familiarize them with ICT facilities that can promote teaching and learning in schools.

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