



(RESEARCH ARTICLE)



The availability and utilization of Information and Communication Technology (ICT) equipment on the teaching and learning of students in public secondary schools in delta central senatorial district, Delta State, Nigeria

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Abstract

The research work X-rayed the availability and utilization of Information and Communication Technology (ICT) Equipment on the teaching and learning of students in Public Secondary Schools in Delta Central Senatorial District. In carrying this research; four (4) research questions guided the study. Survey research design was adopted for the study and the population of the study consisted of 6,405 public secondary schools' teachers. The sample of the study was made up of 600 respondents both principals and teachers randomly selected from all public secondary schools in Delta Central Senatorial District. The finding revealed that, there are inadequate ICT facilities to be used by teachers and students in teaching and learning process. The study recommends among other that school administrators and stakeholders should encourage utilization of ICT facilities in schools by providing adequate training to teachers and subsequent encouraging students as it helps them during Joint Admission and Matriculation Board Examination and other external examinations. Federal/State government should provide enough ICTs facilities in the public secondary schools in Delta Central Senatorial District to comply with the technological advanced society.

Keywords: Availability; Facilities; Information; Teaching; Utilization

1. Introduction

Education has significant role in countries development and growth. Today, it is difficult to undermine the place of ICT in education and the world at large. In fact, ICT has accelerated, enriched and deepened skills; motivated students and engaged them in learning to help school experiences to work practices, contributed to radical changes in school; and strengthened teaching. (Ubogu & Money, 2020). According to Ajayi (2008), teachers can utilise ICT to push their students beyond their comfort zones, ensure that they are actively participating in the learning process, and create critical situations in which students can try new things and make discoveries. However, the implementation of information and communications technology requires the purchase of pricey hardware and software, which places a significant financial burden on schools and their patrons. Before making use of information and communication technologies (ICT) in their day-to-day activities, it is essential for both instructors and students to have a fundamental understanding of these technologies. This new breakthrough is a clear indicator that the days of teachers who are unable to use modern technology properly are behind us. Sadly, the majority of teachers in today's classrooms lack the technological expertise necessary to instruct their pupils on how to make effective use of computers to improve their academic performance. This remark was in agreement with the most recent technical developments that have been implemented into the public secondary schools.

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Depending on who you ask, the word "information and communication technology" can have a range of different connotations. Wertlen (2014) & Ubogu (2013) defines it as an umbrella phrase that can be used to refer to any technology that can help produce, edit, store, communicate, or spread information. It is the totality of technological or electronic means, tools and resources used for collecting and presenting information to end users in support of their activities. These activities include information processing, transfer, and display. According to Ozoji and Jimoh (2007), information and communication technology (ICT) is the administration and processing of information (text, images, graphics, instructions, and so on) for use through the use of electronic and communication equipment such as computers, cameras, and telephones. When information and communication technology (ICT) is integrated with the internet, it assists students in entering the global community by allowing them to get a great amount of human experience. In this approach, students will not only be able to broaden their own perspectives, opinions, and experiences, but they will also be able to gain the skills required to survive in the real world.

The usage of information and communication technology (ICT), a device driven by technology developed since the turn of the millennium, is mandated for all educators to ensure effectiveness and high productivity in the learning and teaching process. Utilizing various forms of information and communication technology (ICT) can help educators improve their level of expertise. The preparation of the lesson plan and notes for efficient teaching and learning can make use of ICT, which can be used by the instructor. According to Rampersad (2012) educators are required to incorporate ICT into their lesson planning in order to improve the instructional tactics they use in the classroom. Trucano (2005) also developed strategies for successful use of information and communications technology (ICT) for achieving optimum efficiency in the classroom teaching environment. These strategies include the lesson planning, teaching, and evaluation processes. During the process of putting together a lesson plan, information and communication technology can be put to use in the creation of worksheets as well as the research of course material via the internet. Given this backdrop, the study's aimed to examine how pupils in public secondary schools in the Delta State Senatorial District are taught and educated using information and communication technology (ICT).

The conventional method of teaching and learning is expected to give way to more dynamic and adaptable teaching strategies in today's environment, such as learner-centered self-regulated learning, inquiry methods, self-instructional strategies, and learner-assessment strategies, amongst others. This shift is expected because of the changing nature of the environment in which teaching and learning takes place. Students were able to make use of a variety of learning tools, one of the most fundamental of which was ICT, thanks to this strategy that centered on the learner. This resulted in the content, activities, resources, and pace of learning being given priority, which positions the learner at the heart of the learning process and improves their capacity for independent learning. Nevertheless, despite the undeniable significance of information and communications technology (ICT) in the educational system, as well as the substantial financial investment made by the federal and state governments towards an ICT-driven initiative known as "school net," Adomi (2010) offered the opinion that despite the gifts of information and communication technology (ICT) facilities to public secondary schools in Nigeria by non-governmental organizations, some instructors are still hesitant, inept, and unproductive in their use of these resources to improve their pupils' academic performance. According to Lau and Sim (2008), there is still a long way to go before secondary school teachers in Nigeria will be able to take use of the potential afforded by 21st century technology. This claim was backed up by Adomi (2010), who found that 75% of teachers in Nigerian public secondary schools have little or no experience using ICT in education.

It is almost worrisome and exciting to investigate whether the readily available information and communication technology (ICT) gadgets offered by government and non-government organizations are properly used by educators to better the teaching and learning process. It is likely that students' poor performance on the Joint Admission and Matriculation Board exam (JAMB) is due to their insufficient usage of information and communication technology. In the same vein, were instructors properly instructed on how to use information and communication technology (ICT) in the classroom? Furthermore, were teachers supervised in their use of ICT in the classroom? This could be due to the recognized limitations of the traditional "chalk and talk" method of teaching, which is more of a teacher-centered approach than a learner-centered approach and is still used in some schools today, affecting student performance on various examinations. These identified problems therefore, have informed the need to conduct a study on "The Availability and Utilization of Information and Communication Technology (ICT) Equipment in Public Secondary Schools in Delta Central Senatorial District of Delta State."

The main purpose of the study is to evaluate the use of Information and Communication Technology (ICT) in the teaching and learning of students in Public secondary schools in Delta Central Senatorial District. This study has four research questions:

What are the available Information and Communication Technology (ICT) tools use in enhancing teaching and learning in students of Public secondary schools in Delta Central Senatorial District?

What is the impact of ICT on teaching and learning on the academic performance of students?

What are the challenges of teachers on the use of ICT in teaching and learning in Public Secondary Schools in Delta Central Senatorial District?

What are the strategies on improving the use of ICT in teaching and learning in Public Secondary Schools?

2. Methodology

The area of study was Delta Central Senatorial District of Delta State. A Descriptive Survey Design was used. The population for the study consists of all the secondary school teachers located in Delta Central Senatorial District of Delta State Nigeria. The choice of Delta Central Senatorial District is because it harbors teachers whose origin spread across the three Senatorial District of the state; South, North and Central Senatorial District of Delta State. (Ubog, 2020). A sample of 600 teachers of secondary schools in Delta Central Senatorial District was randomly selected from a population of 6,405. Twenty (20) item questionnaires labelled "Availability and Utilization of ICT Equipment in Teaching and Learning" (AUICTETL) was used to collect data from the respondents. Two measurement and evaluation experts validated the instrument and the reliability of the instrument was established using the Cronbach alpha-generating a coefficient of 0.79, indicating that the instrument was reliable. The questionnaire was designed to obtain the opinions of respondents in a 4-point Likert scale manner of strongly Agree, Agree, Disagree and Strongly Disagree. The study adopted a descriptive survey technique. The opinion poll was conducted solely by the researcher and only 600 of the questionnaires were return in good and useable condition. The frequency distribution and descriptive statistics obtain were analyzed with the SPSS software version 22, while a mean score below 2.50 was interpreted as negative (disagreeing to the research question) and a mean score above 2.50 was interpreted as positive (agreeing to the research question).

3. Results and discussions

3.1. Analysis of Research Questions

3.1.1. Research question 1

To what extent are the availability of Information and Communication Technology (ICT) tools use in enhancing teaching and learning of students in Public Secondary Schools in Delta Central Senatorial District?

Table 1 Mean score of the availability of Information and Communication Technology (ICT) tools use in enhancing teaching and learning

S/N	ITEM	Mean	Decision
1	There are available computers desktop in Public secondary schools in Delta Central Senatorial District.	2.04	Disagree
2	Public secondary schools in Delta Central Senatorial District have enough laptop for students use.	2.20	Disagree
3	There are enough computers to be used by teachers and students in teaching and learning process in Public secondary schools in Delta Central Senatorial District	2.42	Disagree
4	Government provides adequate computer to facilitates teaching and learning process.	2.30	Disagree
5	Schools provide internet access to students and teachers	1.98	Disagree

From **Table 1**, the low mean score of 2.04, 2.20, 2.42, 2.30 and 1.98 respectively indicates a negative that respondents disagreed on the availability of ICT tools to facilities teaching and learning process.

3.2. Research question 2

What is the impact of ICT on teaching and learning on the academic performance of students?

Table 2 Mean Score of the impact of ICT on teaching and learning on the academic performance

S/N	ITEM	Mean	Decision
6	Academic performance of students is improved with the use of ICT in teaching and learning	2.65	Agree
7	The used of ICT guides teachers, and students which contributes positively to students' academic performance in Public secondary schools in Delta Central Senatorial District.	2.90	Agree
8	Digital Library can be used as resource center to facilitate and enhance academic performance of students	2.53	Agree
9	Students who are expose to ICT perform better academically	2.98	Agree
10	Using overhead projector in teaching and learning improves students' academic performance	2.86	Agree

Depicted in **Table 2**, are the mean score of 2.65, 2.90, 2.53, 2.98 and 2.86 respectively indicate a positive response. Based on the mean score and the remark it is clear that all the issues highlighted enhances academic performance of students in Public Secondary School in Delta Central Senatorial Distinct of Delta State, Nigeria.

3.3. Research question 3

What are the challenges of teachers on the use of ICT in teaching and learning in Public Secondary Schools in Delta Central Senatorial District?

Table 3 Mean Score of the challenges of teachers on the use of ICT in teaching and learning

S/N	ITEM	Mean	Decision
11	There are not enough ICT facilities to improve teaching and learning in public secondary schools	2.60	Agree
12	The high cost of linking a personal computer to the internet poses as a barrier to making effective use of the ICT	2.74	Agree
13	Lack of interest in ICT is a factor hindering teachers' effective utilization of ICT facilities.	2.04	Disagree
14	Teachers do not have knowledge of the effective use of ICT in public secondary schools	2.93	Agree
15	There are insufficient training personnel to handle ICT facilities in public secondary schools in Delta Central Senatorial District	3.02	Agree

From **Table 3**, the mean score of 2.60, 2.74, 2.93 and 3.02 respectively indicate a positive response regards challenges faced by teachers on the use of ICT in teaching and learning in public secondary schools in Delta Central Senatorial District of Delta State, Nigeria. However, the low mean scores of 2.04 indicate that lack of interest in ICT is not a factor hindering teachers' effectiveness in utilization of ICT facilities. This may have resulted from the fact that teachers do not have knowledge of the effective use of ICT tools in Public Secondary Schools in Delta Central Senatorial District of Delta State, Nigeria.

3.4. Research question 4

What are the strategies in improving the use of ICT in teaching and learning in Public Secondary Schools in Delta Central Senatorial District?

Table 4 Mean score showing the strategies used in improving the use of ICT in teaching and learning in Public Secondary Schools

S/N	ITEM	Mean	Decision
16	Capacity building and training opportunities for teachers and students on ICT skills	2.91	Agree
17	Using ICT presentation software such as powerpoint/ multimedia presentation in teaching and learning	2.51	Agree
18	The use of overhead projector for teaching and learning	2.79	Agree
19	Provision of digital library with computers and laptops	3.10	Agree
20	Provision of internet facilities such as router, modem for networking purpose	2.84	Agree

Depicted in **Table 4**, are the mean scores of 2.91, 2.51, 2.79, 3.10 and 2.84 respectively indicates positive response of the strategies in improving the use of ICT in teaching and learning in Public Secondary Schools in Delta Central Senatorial District in Delta state, Nigeria.

4. Discussion

According to the data in **Table 1**, the majority of secondary schools lack readily available information and communication technology facilities. Compliance with ICT standards should be emphasized if Nigeria is to produce graduates who are both functional and effective. Ubogu (2012) posited that most schools lack most of the ICT tools that will enhance the integration of ICT into teaching and learning. As a result, a shortage of proper ICT equipment hampers the performance of teachers and pupils in Nigeria's public secondary schools. This study is not in line with Ubogu (2010) that e-learning (ICT facilities) in secondary schools is considered adequate for learning for the reason that pupils show more interest in learning. In addition, class session is more interactive and interesting, increases pupils class room participation and high scores in subjects where e-learning facilities are used.

The findings of the study also show that students and teachers perceive ICT as having positive impact. From **Table 2**, it is seen that teachers acknowledged that ICT enhances their academic activities. This finding is consistent with that of Kosoko-Oyedeko and Tella (2010), who posited that the use of Information and Communications Technology (ICT) in educational settings is both relevant and functional in the delivery of education to learners in order to assist them in learning the skills necessary for the working world. Educators can use information and communication technology (ICT) to push students beyond their traditional limitations, ensuring proper involvement in the teaching and learning process, and offer important spaces for students to experiment and discover new things. Also, Ubogu (2020), in corroboration with the finding stated that ICT aids effective teaching and learning and easy flow of information through effective communication.

Table 3 reveals the challenges teachers faced on the use of ICT in teaching and learning in Public Secondary Schools in Delta Central Senatorial District. Some of the challenges includes, inadequate ICT facilities, lack of adequate ICT knowledge, etc. This study is consistent with the work of Ubogu (2013) who highlighted that inadequate ICT facilities and poor power supply are amongst others that affect the utilization of ICT in teaching and learning process.

Many instructors, according to Brooks (2012), perceive computers as an additional obligation and source of stress. He laments educators' lack of understanding of the potential of computers in the context of education, and he observes that as a result, education tends to limit computer users' skills to processing and e-mail. Other studies, Ubogu & Evarista (2012) & Ubogu & Money (2020) revealed that poor ICT skills and lack of ICT tools among teachers and students are challenges faced in teaching and learning process.

The findings of the study in **Table 4** revealed capacity building and training opportunities for teachers and students, using ICT presentation software such as power point, the use of overhead projector, provision of digital library with computers and laptops and provision of internet facilities as strategies for enhancing the use of ICT in teaching and learning in Public Secondary Schools in Delta Central Senatorial District of Delta State, Nigeria. This finding is in line with Ubogu & Money & Nwosu (2005), who revealed in their different studies that the provision of ICT facilities enhances teaching and learning process.

5. Conclusion

From the foregoing discussion, it is obvious that the utilization of ICT in education is an indispensable tool in modern teaching/learning process and so its adoption by teachers in secondary schools will go a long way toward the enhancement of one's teaching style.

The integration of information and communication technologies (ICTs) into educational environments has drastically revolutionized teaching and learning. Students who study in a variety of ways can optimize their learning potential when lecturers use information and communication technology (ICT) to enrich their teachers. However, in order to achieve maximum impact and influence of ICT, culture and the society to which teachers belong have to be adjusted to meet the challenges of the knowledge age. (Ubogu, 2013).

Recommendations

From the findings of the study, it is recommended that;

- School administrators and stakeholders should encourage utilization of ICT facilities in schools by providing adequate training to teachers and subsequent encouraging students as it helps them during Joint Admission and Matriculation Board Examination.
- Federal government should provide enough ICTs facilities to all students in Delta Central Senatorial District to comply with the technological advance society.
- Teachers should be given sufficient training on how to use ICT in teaching and learning processes to acquire the requisite knowledge and skills in integrating the technology in classrooms. They must seize the initiative and equip themselves with these important life skills. (Ubogu, 2011)
- School administrators should initiate training program for teachers to be acquainted with the global challenge of administration of public secondary schools
- There should be ICT technical support system in public schools.

Compliance with ethical standards

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Disclosure of conflict of interest

The Authors proclaim no conflict of interest.

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