INFLUENCE OF ICT INTEGRATION ON STUDENTS' ACADEMIC PERFORMANCE IN PUBLIC SECONDARY SCHOOLS IN AWKA SOUTH L.G.A OF ANAMBRA STATE

Obineme Patience Obiageli (Ph.D)
Department: Educational Management and Policy
Email: po.obineme@unizik.edu.ng
Phone Number: 08066124487

Dr. Chika Nonye Eziamaka
Department: Educational Management and Policy
Email: cn.eziamaka@unizik.edu.ng
Phone Number: 08068983795

Obodozie Chioma Cynthia
Department Educational Management and Policy
Email: 080obodoziechioma@gmail.com
Phone Number: 07054780327

Abstract
This study investigated the influence of ICT integration on students' academic performance in public secondary schools in Awka south local Government Area of Anambra State. Three research questions guided the study Descriptive survey research design was employed in the study. Population of the study comprised 2,096. Proportionate stratified random sampling technique was used to select 380 respondents from SS 2 student from 19 secondary schools in Awka South L.G.A of Anambra State. A 16- Item Questionnaire titled influence of ICT Integration on Students' Academic Performance Questionnaire (IIISAPQ) developed by the researchers was the main instrument for data collection. The research instrument was validated by three experts two from the department of education Management and Policy and one from the department of educational Foundations, faculty of education, Nnamdi Azikiwe University Awka. Cronbach Alpha method which gave internal consistency reliability value 0.60, 061 and 0.65 for each of the three clusters and these score equally added up to yield an overall reliability value of 0.63 showing that the questionnaire was reliable for conducting the study. Data collated were analyzed using mean scores and standard deviation in order to answer research questions. The findings of the study indicated that the extent to which ICT integration influences students' Academic performance were to a low extent. From the findings of this study, recommendations were proffered. And they include among others that secondary school administrators should organize conferences, seminars and workshop on ICT for teachers and students in order to promote both teaching and learning. However the government should provide ICT resources and digital tools for proper collaboration and communication among students, teachers and parents. Also Ministry of Education should integrate ICT into their curriculum to increase quality educational resources to enhance understanding and retention of complex concepts.

Keywords: ICT Integration, Students' Academic Performance, Public Secondary Schools.

Introduction

Information and Communications Technology (ICT) has gone through innovations and transformation in our society that has totally changed the way people think, work and live (Grabe, 2017). As part of this, schools and other educational institutions which are supposed to prepare students to live in "a knowledge society" need to consider ICT integration in their curriculum (Ghavifekr,2022). In conjunction with preparing students for the current digital era, teachers are seen as the key players in using ICT in their daily classrooms. This is due to the capability of ICT in providing dynamic and proactive teaching-learning environment (Arnseth & Hatlevik, 2012). There is no doubt that technology in this contemporary society is used more and more widely,especially for the

purpose of teaching and learning. This is because modern technology offers many tools that can be used in classrooms to improve teaching and learning quality (Bruniges, 2023).

Rosnaini Mahmud (2020) define ICT integration as the process of determining where and how technology fits in the teaching and learning scenario. It is able for everyone can enter the websites from everywhere at any time to use the free information by the internet. Worldwide research has shown that ICT can lead to improve students' learning as well as better pedagogical practices. ICT has the potential in preparing students for life in the 21st century. Through learning ICT skills, students are ready to face future challenges based on proper understanding (Grimus, 2020). Bransford (2020) believe that ICT use can help students to develop the competencies needed for the current globalization. This is because ICT can help students to develop their skills, boost up their motivation and widen their knowledge and information (Grabe, 2017; Hussain et al., 2021).

In line with globalization and the information highway, the Awka South education system is planned to educate students as the future workforce who are technology- savvy, innovative and conversant in technical know-how (Ghavifekr, 2021). This is to enable the nation to be creative and competitive for the current globalization, the need for effective ICT-based curriculum is one of the main elements in strategic planning for ICT integration in the Awka South education system as this will ensure that technology investment decisions are optimized in the system and well planned (Suhaimi et al., 2017).

Planning for ICT integration in education is considered as a key element for improvement and development. Previous research shows that due to the issues and challenges related to the use of learning technologies in the Awka South education system, ICT integration and implementation is a complex process which requires strategic planning by the policy and decision makers (Ghavifekr, 2020). According to Ben Youssef (2018), since academic performance is mainly explained by the characteristics of students and the educational environment (secondary school), these factors may directly or indirectly affect ICT use and consequently the outcome of education. The influence of ICT integration characteristics on secondary school students' academic performance have already been proven in prior literature (Ali; 2023). More importantly, academic achievement is commonly explained by elements such as self-efficacy and motivation. It seems that the use of ICTs can increase students' motivation and consequently their overall achievements (Casta~no-Mu~noz, Duart, 2023).

Several research results support the hypothesis that secondary school students who have ICT equipment at home attain higher educational levels (Carle et al., 2019;Fairlie & London, 2022). They confirm that home computers represent an important substitute for secondary school and also appear to improve computer skills, possibly leading to more efficient use than alternative locations of use. However, other researchers (Wurst, 2018) advocate that the availability of ICT is not, in itself, sufficient to enhance learning process and, in turn, increase academic attainment. They presume that personal computer (PC) ownership and Internet access at home are more indicators of wealth than of digital competences.

Furthermore, the mere availability of computers and Internet at home mainly serves for entertainment (Junco, 2022b).ICT skills and use. In the literature, ICT literacy includes students' ability to search for necessary information, and to solve problems by utilizing ICT tools effectively. Accordingly, ICT skills have to be analyzed jointly with students' specific uses. Several studies (De Wit, 2022) show no significant relations among the levels of skills in the technology handling, the educative uses of ICT, and the academic performance of secondary school students. On the other hand, other researchers (Chen, 2021) maintain that ICT skills, mainly software knowledge, and ICT use for academic work have a significant effect on students' academic performance.

Secondary School ICT infrastructure. Without adequate resources, there is little opportunity for students and teachers to integrate ICTs into their learning–teaching activities. Despite that, scarce literature exists on ICT availability in secondary school and their influence on students' academic performance. This may be explained by the fact that most of the research in the field is pursued by researchers from developed countries where most of the secondary schools have already plentiful access to sufficient technological facilities (Balasubramanian et al., 2019). Instead, increasing numbers of studies are starting to evaluate the usefulness of various types of advanced technologies and equipment, including smart classrooms (Sevindik, 2010) and smart mobile devices such as tablet computers, in teaching and instruction (El-Gayar,2021) introduced in secondary education institutions. In developing countries, however, ICT infrastructure of secondary schools are poorly developed,

including only basic ICT technologies such as Internet and computers (Sife, 2017). Needless to say, access is not simply the availability of technology tools; it also includes the proper amount and right type of technology available on the secondary schools.

Statement of Problem

Nigeria's education system is undergoing reforms to align itself with vision 2030 but despite the efforts of the Anambra State government to integrate ICT into education, there are concerns about the influence of ICT integration on students' academic performance in secondary schools in Awka. The following problems have been observed:

Many public secondary schools in Awka south LGA lack adequate ICT infrastructure, making it difficult for students to develop ICT skills. That's a significant challenge that can hinder students' ability to develop essential skills in today's technology-driven world. potential consequences, students may fall behind their peers in other schools or regions with better ICT infrastructure, limited ICT skills can make students less competitive in the job market or higher education, students may not be adequately prepared for technology-integrated classrooms and workplaces,etc.

Without access to digital resources, students may rely on outdated textbooks, leading to a lack of current information. Students may struggle to conduct thorough research, leading to poorly informed assignments and projects, students may not have access to academic journals, research papers, and other valuable resources, students may miss out on interactive learning tools, educational videos, and online tutorials, students may face challenges submitting assignments, taking online quizzes, or participating in online discussions, students may not have access to a wide range of digital books, articles, and research papers. Students may miss out on opportunities to connect with peers, ask questions, and learn from others, students may not have access to images, videos, podcasts, and other multimedia resources that can enhance learning.

Some others are the inability to find credible sources, struggling to identify trustworthy sources, leading to inaccurate information, trouble finding relevant information due to ineffective search strategies. Inability to evaluate sources, struggling to critically assess sources for bias, reliability, and relevance, missing out on valuable research papers, journals, and articles, struggling to keep track of sources, notes, and ideas.

Teachers in Awka South L.G.A may not have received sufficient training on ICT integration, hindering effective implementation. Inadequate teacher training is a crucial factor to consider. Here are some potential consequences; teachers may struggle to effectively incorporate ICT into their teaching practices, reducing its impact, Insufficient training can lead to teachers feeling uncomfortable using ICT, resulting in reluctance to adopt new technologies,Limited student benefits: Students may not fully benefit from ICT's potential to enhance learning outcomes, engagement, and skills development.

Teachers without access to ICT will have difficulty finding and sharing relevant teaching materials, videos, and images, face challenges in communicating with students, parents, and colleagues either through email, messaging apps, or video conferencing, or even manual grading, attendance tracking, and data analysis which could be tedious and time-consuming. Hence the need for the study.

Purpose of the Study

The purpose of this study is to investigate the influence of ICT integration on students' academic performance in secondary schools in Awka South Local Government Area of Anambra State. Specifically, the study sought to:

1. determine the extent to which ICT integration improves students' academic performance in public secondary school in Awka South Local Government Area of Anambra.
2. determine the extent of availability of ICT resources influences on students 'academic performance in public secondary schools in Awka South Local Government Area of Anambra.
3. examine how teachers' competent in teaching ICT influence ICT integration on students 'academic performance in public secondary schools, Awka South Local Government Area of Anambra.

Research Questions

1. To what extent does ICT integration improves students' academic performance in public secondary school in Awka South?
2. To what extent does availability of ICT resources influence students' academic performance in public secondary schools in Awka South?
3. To what extent does teachers' competent in teaching ICT influence students' academic performance in public secondary schools, Awka South?

Method

Descriptive survey research design was employed in the study. . the design was adopted to enable the researchers to use a research instrument (that is questionnaire) in order to collect information or data from a sample out of the population of secondary school students in Awka south L.G.A of Anambra State. Population of the study comprised a total of 2,096. Sample of the study constituted 380 SS2 students was randomly drawn at 5% from proportionate stratified random sampling technique. A 16-item questionnaire developed by the researchers and titled "influence of ICT integration on students' Academic performance Questionnaire (IIISAPQ) was used for data collection. The questionnaire was structured on a 4point scale while the responses structured accordingly as Very High Extent (VHE)- 4 points High Extent (HE) – 3points, Low Extent (LE)- 2 points and Very Low Extent (VLE) -1 point. Three experts validated the instrument two from the department of Educational Management and Policy and one from the department of Educational foundations, Faculty of Education, Nnamdi Azikiwe University Awka. Reliability of the research instrument was established through a pilot test conducted in Anambra State. Scores obtained after the pilot test was measured using Cronbach Alpha method, which gave internal consistency reliability value of 0.60, 0.61 and 0.65 for the three clusters, which was summed up to give an overall reliability value 0.63; showing that the questionnaire was reliable to use for the study. A total of 380 copies of questionnaire were distributed using the direct hand delivery process and electronic system through mails but not all the copies of questionnaire distributed were retrieved. Out of the 380 copies of the questionnaire distributed, 364 copies were recovered making a rate of return of 94.49% as against 5.6% not recovered. Data collated were analyzed using only mean scores and standard deviation. The decision rule for interpreting the scores on each statement on the questionnaire was based on the mean scale, which was benchmark on 2.50. Only mean scores of the respondents, which rated 2.50 and above were regarded as an indication of very high extent and High extent, and therefore, accept. While mean scores of the respondents' statements which rated below 2.50 was regarded as an indication of low extent and very low extent and therefore not accepted.

Results

Research Question One: To what extent does ICT integration improves students' academic performance in public secondary schools in Awka South L.G.A, Anambra?

Table 1:

S/N	In my school, ICT Integration brings about;	Mean	Decision Rule
1	Improved student engagement and motivation	1.59	Low extent
2	Enhanced students' understanding and retention of complex concepts	2.01	Low extent
3	Increased access to quality educational resources	3.27	High extent
4	Personalized learning experiences tailored to individual needs	1.90	Low Extent
5	Improved assessment and feedback mechanisms	2.18	Low extent
6	Increased collaboration and communication among students, teachers, and parents	2.20	Low extent

Analysis of results from table one on ICT integration responses (that is respondents) revealed that only item 3 was rated above 2.50 of the acceptable mean score by students, to show their agreement with the statement. All the other items 1, 2, 4 to 6 were rated below 2.50 of the acceptable mean score by the students, to show their disagreement with these statements from the above result, it was discovered from the students' responses that the extent of ICT integration to improve students' responses that the extent of ICT integration to improve students' Academic Performance in Public Secondary Schools Awka South L.G.A in Anambra State were to a low extent.

Research question two: To what extent does availability of ICT resources influences students' academic performance in public secondary schools in Awka South L.G.A, Anambra?

Table 2

S/N	In my school, the availability of ICT resources provides;	Mean	Decision Rule
7	Access to computers and internet	1.37	Low extent
8	Availability of educational software and digital resources	2.05	Low extent
9	Quality of ICT infrastructure	1.50	Low extent
10	Access to digital tools for collaboration and communication	1.46	Low extent
11	Teacher training and support in using ICT resources	1.14	Low extent

Analysis of result from table 2 on the availability of ICT resources responses (that is respondents) revealed that none of the items was rated above 2.50 of the acceptable mean score by the students, to show their agreement with any of these statements. All the other items from 7 to 11 were rated below 2.50 of the acceptable mean score by the students, to show their disagreement with these statements. From the above result, it was discovered from the students' responses that extent of availability of ICT resources to influence student's academic performance in public secondary school in Awka South L.G.A of Anambra State were to a low extent.

Research question three: To what extent does teachers' competence in teaching ICT influences on students' academic performance in public secondary schools in Awka South L.G.A, Anambra?

Table 3

S/N	Teachers' competence in teaching ICT ensures	Mean	Decision Rule
12	Teachers' ICT skills and knowledge	3.05	High extent
13	Effective integration of ICT into curriculum and pedagogy	3.08	High extent
14	Teachers' ability to facilitate ICT-based learning	2.05	Low extent
15	Teachers' confidence in using ICT	1.41	Low extent
16	Teachers' continuous professional development in ICT	1.25	Lowh extent

Analysis of results from table 3 on Teachers' competence in teaching ICT in public secondary Schools responses (that is respondents) revealed that item 12 and 13 were rated above 2.50 of the acceptable mean score by students, to show their agreement with the statement. All the other items from (14 to 16 were rated below 2.50 of the acceptable mean score by the students, to show their disagreement with these statements. From the above result, it was discovered from the students' responses that the extent of Teachers' competence in teaching ICT in Public Secondary Schools in Awka South L.G.A of Anambra State were to a low extent.

Discussion of findings

This finding of the study revealed that the extent to which ICT integration improves students' academic performance in public secondary schools in Awka South Local Government Area, Anambra as some agreed to a low extent that improved student engagement and motivation, Enhanced understanding and retention of complex concepts, increased access to quality educational resources and others disagreed to a low extent that personalized learning experiences tailored to individual needs, improved assessment and feedback mechanisms, increased collaboration and communication among students,teachers, and parents. This therefore entails to what extent does availability of ICT resources influences students' academic performance. This study does not align with the study by Stephen Ngugi Mbugua, Joel Kiboss, Edward Tanui (2015) who reiterates in their study on Influence of Integration of Information Communication Technology in Teaching on Students' Academic Performance in kenya which states that integration of ICT in teaching affect students' academic performance positively.

The finding of the study revealed that the extent to which availability of ICT resources influences students' academic performance in public secondary schools in Awka South Local Government Area, Anambra as all agreed to a low extent by the respondents. They agreed to very high extent that availability of educational software and digital resources, quality of ICT infrastructure, access to digital tools for collaboration and communication, teacher training and support in using ICT

resources and access to computers and internet. This therefore entails to what extent does availability of ICT resources influences students' academic performance. This study are in line with the study by Lawrence Femi Ademiluyi(2019)who reiterates in their study on Adequacy and Utilization of ICT Resources for Teaching Business Subjects in Senior Secondary Schools in Osun State, Nigeria which states that the twelve items listed only computer tablets (mean:2.59) was available to a moderate extent; three were available to a small extent. These are computer teachers (Mean: 2.19) and computer technicians (Mean: 2.11) and smartphones (2.41). This study are in line with the study by Lawrence Femi Ademiluyi(2019)who reiterates in their study on Adequacy and Utilization of ICT Resources for Teaching Business Subjects in

The finding of the study revealed that items listed as theextent to which teachers' competence in teaching ICT influences students' academic performance in public secondary schools in Awka South L.G.A, Anambra as all agreed by the respondents. They agreed that teachers' ICT skills and knowledge, teachers' ability to facilitate ICT-based learning, teachers' confidence in using ICT,teachers' continuous professional development in ICT and effective integration of ICT into curriculum and pedagogy. This therefore entails to what extent teachers' competent in teaching ICT influences students' academic performance.This study are in-line with the study by Stephen Ngugi Mbugua, Joel Kiboss, Edward Tanui (2015) who reiterates in their study on Influence of Integration of Information Communication Technology in Teaching on Students' Academic Performance in Kenya which states that there was no significant difference between the teachers' highest level of education and level of integration of ICT in teaching was rejected. This meant that teachers' highest level of education affects integration of ICT in teaching. Thus, integration of ICT in teaching depends on the teachers' highest level of education.

Recommendations:

Based on the findings of the study, the following recommendations were made.

1. Secondary school administrators should organize conferences, seminars and workshop on ICT for teachers and students in order to promote both teaching and learning. Government should provide ICT resources and digital tools for proper collaboration and communication among students, teachers and parents.
2. The Ministry of Education should also integrate ICT into their curriculum to increase quality educational resources to enhance understanding and retention of complex concepts.

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