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CHALLENGES FACING THE USE OF ICT IN TEACHING COMPUTER STUDIES IN PUBLIC SECONDARY SCHOOLS IN AWKA SOUTH L.G.A.

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ABSTRACT

This study was conducted to examine the challenges facing the use of ICT in teaching computer studies in public secondary schools in Awka South Local Government Area. The study was guided by two research questions. The study adopted a descriptive survey design. Population of the study comprises 1,533 public senior secondary two students (SS2) and 43 teachers from the 18 public secondary schools in Awka South L.G.A. Through simple random sampling, 180 students and 20 teachers were selected as sample size for this study. Instrument for data collection was a 24-item structured questionnaire validated by two experts. The reliability of the instrument was determined using Cronbach Alpha which yielded a coefficient value of 0.76. The data analyses using mean scores. The findings revealed that the challenges facing the use of ICT in teaching computer studies in public secondary schools in Awka South L.G.A include lack of internet access, inadequate electricity supply, and lack of funding by the government. It was also found that lack of technical support for the available ICT facilities and inadequate security measures to safeguard the ICT facilities are among the challenges to the use of ICT in teaching of computer studies. The findings of this study also revealed that the solutions to the challenges facing the use of ICT in teaching of computer studies in public secondary schools in Awka South Local Government Area includes proper maintenance and repairs of ICT facilities, regular in-service training for computer teachers, monitoring ICT usage in schools by the government. Based on these findings, it was recommended that the government should provide budgetary allocation for the provision of ICT facilities, the school administrators should ensure the safety of the available ICT facilities by providing adequate security measures, internet service providers should provide free internet access to schools to enable them to utilize the available ICT facilities.

Research Data Availability Statement

The data that support the findings of this study are uploaded along with the manuscript.

Keywords: **Teaching, Education, Computer, Secondary School, Anambra, Nigeria, Students**



[Chapter 1-5 - Chukwunedum Davidson.pdf](#)

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CHAPTER ONE

INTRODUCTION

Background of Study

One of the fundamental rights of every human being is education. Education prepares the individual for challenges in life. Consequently, Guijar (2010) opined that education does not only deliver information, but

for developing the complete personality of a child. In Nigeria there are three levels of education; primary, secondary and tertiary level. Secondary education is the level between primary and tertiary education. It prepares students to be productive members of the society (Jegede2013). In developed countries, secondary schools are seen as a gateway to providing not only an educated citizenry but also a capable workforce.

According to the World Bank in Etim (2016), secondary education is now being recognized as the cornerstone of the educational system in the 21st century. Secondary school is said to be the foundation for national development. It is the centre for producing resources necessary for socio economic, scientific development needed for advancement of any nation all over the world. It therefore means that quality secondary education is indispensable in creating a bright future for individuals and nations alike especially through science, Science is the study of the physical and natural world through observations and experiments. Science is all around us. The food we enjoy, water we drink, and clothes we wear are all based in science. Studying the atmosphere gives us a glimpse into astronomy, another branch of science.

Science is everywhere and is one of the most important subjects of study in our world (Guenther, 2018). The study of science subjects also helps the students to grasp essential science concepts, to understand the nature of science, and to enhance student's scientific literacy. Through science education students are helped to realise the relevance of science and technology to their lives, and this will encourage them to continue their science study in school, or beyond school. Some of the science subjects offered in secondary school include; chemistry, mathematics, physics, biology and computer studies.

Computer studies deals with the study of computer systems, and its application in solving the problems of everyday living (Anaehobi, 2020). It also builds a strong foundation for students who wish to further their studies and training in specialized areas of science. Computer studies are relevant for all students because it incorporates a broad range of transferable problem-solving skills and techniques including logical thinking, creative design, synthesis, and evaluation. Students acquire the required skills and knowledge to handle technology by studying computer studies so as to integrate to the different dimensions of life in the 21st century. Studying computer studies makes it possible to handle different breakdowns in the hardware or software of the computer to ensure that there is a continuous flow of daily operation.

Further, Computer studies provide a basis for effective information, communication and technology progress in the community. Information and communication technology (ICT) has become an important source of innovation and improvement of efficiency for many sectors across the globe. In the education sector, particularly, the application of ICT has become a critical part of the learning process for students both outside and in the classroom setting. The use of ICT creates a powerful learning environment and it transforms the learning and teaching process in which students deal with knowledge in an active, self-directed and constructive way. ICT is not just regarded as a tool, which can be added to or used as a replacement of existing teaching methods. ICT is seen as an important instrument to support new ways of teaching and learning. It should be used to develop students' skills.

When students are engaged in active and experiential learning, they tend to retain knowledge for longer periods and also develop key skills needed for functional living in his or her contemporary society. This important issue made Centre for Information Technology and Development, (CITAD) (Vanguard, 2021) to call on the government to implement computer studies fully in secondary schools' curriculums in order to increase computer literacy among the students in the country, also provide Information and Communications Technology, (ICT) facilities in the laboratories and schools to aid the teaching of the subject in the schools. (Vanguard 2021).

Furthermore, technology should be used as a tool to support educational objectives such as skills searching and assessing information, cooperation, communication and problem solving which are important for the preparation of children for the knowledge of society.

In fact, innovative use of ICT can facilitate students centred learning (Drent, 2005), Hence every classroom should use learning technologies to enhance their student learning in every subject especially computer studies because it can engage the thinking, decision making and reasoning behaviour of students. The study of computer studies in school is therefore, aimed at helping the students cope with modern technological development, equip them with knowledge and competencies or skills of programme and administrative management as well as, improve the learning process of students and educators.

Notwithstanding the policy of the government, it is still noted that there is a wide disparity between policy pronouncements and policy implementations in Nigeria. This is evident today in the level of computer literacy among secondary students and their achievement in external examinations like West Africa senior secondary school certificate examination council (WASSCE) years of the poor achievement. The poor achievement and level of computer literacy among students according to Chukwuere and Onyebukwa, (2017), could be as a result of non-availability or non-usage of ICT in teaching and learning of computer studies in schools. These could be also influenced by some other factors.

No wonder, Ololube (2013) observed that in many African countries where the use of ICT infrastructure is obtainable, usage of ICT infrastructure is inadequate as a result of poor electricity supply that will power the ICT equipment and telecommunication facilities. Adomi and kpangban (2010) reported that electricity failure has been a persisted problem militating against ICT use in Nigeria. These make some schools with ICT facilities unable to use them regularly.

Though, an examination of research study done on ICT implementation in schools show that there are two main factors that affect teachers' uptake of ICT. These are manipulative and non-manipulative school and teacher factors. Study by Igwe(2012) on factors influencing the use of ICT in teaching and learning computer studies in Ohaukwu Local Government Area of Ebonyi State indicate that both home and school environment factors influence use of ICT in learning and teaching computer studies in Ohaukwu Local Government Area. However, the researchers are unaware about the factors or challenges facing ICT usage in Public Secondary

School as it concerns Awka South Local Government Area. This gap led the researchers to embark on this study in order to find out the challenges facing public secondary school students from using ICT for learning and the possible solutions.

Statement of the Problem

The researchers observed that there is poor or no usage of ICT in teaching and learning of computer studies in most public secondary schools in Anambra state. Even in some universities where students are supposed to learn with computers, there are little or no ICT facilities for learning. That has been a source of worry to the researchers. When interviews were held with some schools, researchers found out that the ugly incidence is faced or caused by certain challenges which has attracted the concern of the researchers. The problem of this study is therefore to find out those challenges facing the use of ICT in teaching and learning of computer studies in public secondary schools in Awka South Local Government Area.

Purpose of the study

The aim of the study is to investigate the Challenges facing Public Secondary School Students from using ICT in Learning in Anambra State.

Specifically, the study sought to:

1. To investigate the challenges facing the use of ICT in teaching and learning of computer studies in public secondary schools.
2. To suggest the possible solutions to the challenges facing the use of ICT in teaching and learning of computer studies.

Significance of Study

The findings of the study will be of immense benefit to computer teachers, Government, curriculum planners, policy makers and future researchers.

Theoretically, the study will point out and discuss the challenges that face use of ICT in teaching and learning in secondary school, also how they affect students negatively. Thus, readers who have interest in ICT will find the work useful to increase their knowledge about ICT.

To teachers, the knowledge from the study may serve as a guide for overcoming challenges that teacher's face while using ICT to facilitate teaching in secondary schools.

To curriculum planners, it will assist them to know the level of adequate ICT facilities to be made available in school for proper teaching and learning of computer studies. The finding of the study also would make the

government realise the urgency of building and equipping computer laboratories for effective teaching and learning of computer studies in schools.

The study may indicate the capacity building gaps which may be useful in formulating a framework to empower ICT in the secondary school curriculum.

This study would add great knowledge to existing literature in computer education and educations in general thereby serve as materials to future researchers. It therefore forms the basis for further research work by future researchers on this issue.

Scope of Study

The study looked at Public Secondary School in Awka South Local Government Area to find the challenges facing use of ICT tools in teaching and learning in the classroom among school teachers in public schools, and the possible solutions to remedy the challenges facing public secondary school students from using ICT for Learning in public secondary schools in Awka South Local Government Area.

Research Questions

The study came up with research questions so as to be able to ascertain the above stated objectives. The specific research questions for the study are stated below as follows:

1. What are the challenges facing the use of ICT in teaching and learning of computer studies in public secondary schools?
2. What are the possible solutions to the challenges facing the use of ICT in teaching and learning of computer studies?

CHAPTER TWO

LITERATURE REVIEW

The review of literature for this study is arranged under the following sub-headings.

Conceptual Framework

- The meaning of information and communication technology (ICT).
- The meaning of Learning
- The meaning of Teaching
- ICT in Education System

Theoretical Framework

- Downes and Siemens' Connectivism Learning Theories
- Constructivism theory

Theoretical Study

- ICT in Education system
- Importance of ICT in Education
- The Need of Availability and Utilization of ICT Facilities in learning
- ICT Skills Needed by Teachers
- Benefits of ICT to Secondary School Leaders
- Factors Influencing the Use of ICT at Secondary Schools
- Policy and strategies of ICT in Education
- Challenges in using ICT in Teaching and Learning

Empirical Studies

Summary of Literature Review

Conceptual framework

ICT

According to Singh (2015), Information and Communication (ICT) can be defined as a collection of technical devices and resources which are used to transmit, store and manage information; however, the utilisation of ICT in the instructive process has been partitioned into two general classifications: ICT for education and ICT in education. ICT for education suggests the development of ICT particularly for teaching and learning purposes and ICT in education includes the adoption of general parts of ICT in the instructional process Okoro and Ekpo, (2016). ICT in education, the emergence of ICT has transformed the existence and activities of contemporary man particularly in the setting of globalization. Evey and Emmanuel (2010).

Learning

Learning is the key process and is necessary for all educational processes. It pervades everything we do that learning plays an important role in the language we speak, our customs and beliefs. it involves ways of doing things in an individual attempt to overcome obstacles or to adjust to new situations. It is a progressive change

in behaviour effectively to the demands made upon him, thus learning is change in behaviour. Learning can be considered as change that is permanent in nature because change is brought into students by a teacher through techniques like developing specific skills, changing some attitudes, or understanding specific scientific law operating behind a learning environment (Goar, N. S., Buwah, J. S., & Duktur, S. L., 2021).

Teaching

Teaching is a set of events, outside the learners which are designed to support the internal process of learning. Teaching (Instruction) is outside the learner. Learning is internal to learners. You cannot motivate others if you are not self-motivated. Motives are not seen, but Behaviours are seen. Is learning a motive or behaviour? Learning is both a motive and behaviour but only behaviour is seen, learning is internal, performance is external. Sumardi, L., Rohman, A., & Wahyudiati, D. (2020) defines teaching as an art of inducing students to behave in ways that are assumed to lead to learning, including an attempt to induce students to behave. What Schlechty meant by teaching being 'an art' is that the teacher must create situations to facilitate learning and then motivate learners to have interest in what is being transmitted to them.

Deppeler, J., Loreman, T., & Smith, R. (2015) sees teaching as the process of carrying out activities that experience has shown to be effective in getting students to learn. He goes on to say that teaching is that which results in learning – learning is the responsibility of the teacher and that if students do not learn, it is the fault of the teacher. He capped his statements on teaching by stating that teaching is undertaking certain ethical tasks or activities, the intention of which is to induce learning.

ICT in Education System

Nowadays the education system all over the world has certainly been affected positively by the influence of information and communication technology ICT. According to Chiroma, H., Abdulhamid, S. I. M., Abdul—Salaam, Y. G., Usman, A. M., & Maigari, T. U. (2011), information and communication technology has the potentials to accelerate, enrich, and deepen skill; to motivate and engage students in learning to help relate school experiences to work practises; to help create economic viability for tomorrow's workers, contribute to radical changes in school; to strengthen teaching and to provide opportunities for connection between the school and the world. When we are looking at the role of education in nation building and the population explosion in the secondary schools today, the use of ICT in the teaching learning process becomes imperative. Because the utilisation of ICT by teachers will enhance effective teaching (Abdul-Salaam et al, 2011).

Such issues like good course organisation, effective class management, content creation, self-assessment, self-study collaborative learning, task-oriented activities, and effective communication between the actors of teaching learning process and research activities will be enhanced by the use of ICT based technology (Olajubu, E. A., Afolabi, B. S., & Ajayi, A. O, 2009). They posited that, with the aid of ICT, teachers can take students beyond traditional limits, ensure their adequate participation in teaching and learning process and create vital environments to experiment and explore. This new development is a strong indication that the era

of teachers without ICT skills are gone (Ajayi et al, 2009). They also added that, any classroom teacher with adequate and professional skills in ICT utilisation will definitely have his students perform better in classroom learning (Ajayi et al, 2009).

Theoretical Framework

Downes and Siemens' Connectivism Learning Theories.

Connectivism, a learning theory for the digital age, was developed by George Siemens and Stephen Downes in 2009 based on their analysis of the limitation of behaviourism, cognitivism and constructivism to explain the effect technology has on how we live, how we communicate, and how we learn. Connectivism also addresses the challenges that many corporations face on knowledge management activity. Knowledge that resides in a database needs to be connected with the right people in the right context in order to be classified as learning. Information flow within an organization is an important element in organizational effectiveness.

Connectivism is relevant to the study in that it can be applied to management and leadership in the school system. The ability to manage available resources in the school for optimal education achievement of desired educational outcomes is a significant challenge. Realizing that complete knowledge cannot exist in the mind of one person requires a different approach to creating an overview. Furthermore, diverse teams of varying viewpoints are critical structures for completely exploring ideas. Innovation is also an additional challenge.

Most of the revolutionary ideas of today existed as a fringe element. An organization's ability to foster, nurture, and synthesize the impacts of varying views of information is critical to knowledge economy survival.

2.3 Theoretical study

The Need of Availability and Utilization of ICT Facilities in Teaching and Learning Process in Classroom by Teachers

There is some evidence that ICT can be an effective tool in supporting the learning process in the classroom. However, its introduction into schools does not by itself improve the quality of education or raise students' attainment (Hennessy 2010). Effectively introducing technology into schools is also largely dependent upon the availability and accessibility of ICT resources (e.g., hardware, software and communications infrastructure). Clearly if technology cannot be accessed by the teacher, as in so many educational settings in Sub Saharan African countries, then it will not be used. These are predominantly ICT illiteracy and confidence among teachers, and education of subject teachers to assist them in integrating ICT into learning areas (Hennessy 2010).

There are various types of ICT facilities that can be used in the teaching learning process in schools. These are; radio, television, computers, overhead projectors, optical fibres, fax machines, CD-ROMs, Internet, electronic notice board, slides, digital multimedia, video/VCD machine and so on. It is most common that

such facilities are not sufficiently provided for teaching – learning process in many secondary schools in developing countries. Fakeye (2010) in Nigeria points out that most of the schools covered in his study do not have computers, hence are not connected to the internet. He has also added that those who have computers do not use them for teaching but solely for administrative purposes. In another study Adomi & Kpangban (2010) indicated that lack of adequate search skills and of access points in the schools were reported as forces inhibiting the use of the internet by secondary school teachers.

The study to explore factors that influence classroom use of ICT in Sub-Saharan Africa, was noted that, introducing technology into schools is largely dependent upon the availability and accessibility of ICT resources (Hennessy, Harrison & Wamakote 2010). It was observed that schools are increasingly being equipped with computers for teaching, learning and administrative purposes; connectivity is improving and students enthusiastic about using computers for learning despite lack of equipment available. They also noted that there are two main reasons why teachers use ICT. First, teachers feel that their own use of computers benefits the learners, and second, teachers feel learners benefit from using the computers themselves (Hennessy et.al, 2010).

In recent times, there has been extraordinary advocacy both nationally and internationally for the use of ICT in instructional and learning process Okoro and Ekpo, (2016). The educational field has been influenced by ICT, which has explicitly influenced instructional process and research. Davis and Tearle, (2014) as cited in Yusuf, (2015) believe that ICT has the strength to speed up, improve and extend aptitude reforms as it has the capacity to boost teaching by inspiring and engaging learners, and help schools reform by assisting schools in understanding financial and functional practises. Ashley (2016) reiterates that technology helps educators in preparing students for the real world setting and stresses that as our countries turn out to be progressively more technology dependent, it becomes significantly more essential that to be good citizens, students must figure out how to be well informed about ICT. The utilisation of ICT in teaching is a pertinent and practical method for providing education to learners that will enrich them with the required abilities with regards to the world of work. It offers a totally new and advanced learning environment for learners; consequently, they acquire various aptitude sets in order to be fruitful and successful. Critical thinking, research and appraisal aptitudes are developing significantly as learners have expanding dimensions of information from a number of sources to deal with. The incorporation of ICT in instructional process is believed as a medium in which a number of methodologies and pedagogical theories might be implemented; however, ICT as a teaching aid is more difficult and multifaceted as it needs positive attitude from the educators, Salehi (2012).

ICT in schools gives a chance to instructors to change their practices by furnishing them with enhanced educational content and more powerful educating and learning techniques. ICT enhances the instructional process through the arrangement of interactive instructive materials that increase learner inspiration and encourage easy attainment of fundamental aptitudes. Utilization of different multimedia tools such as

Television, recordings, videos and computer applications provides a more challenging and attractive learning atmosphere for learners of any age Haddad and Jurich, (2014).

Furthermore, it enlarges the flexibility of communicating education with the aim that learners can get information on every occasion and from anyplace. It may affect the methodologies through which the learners are educated and how they learn, as the instructional processes are learner driven and they will therefore be prepared for effective learning and the quality of learning will be improved Moore and Kearsley, (2013). One more advantage of introducing ICT in schools is that the learners who do not have accessibility at homes may have the opportunity to utilize them in schools. It can be utilized as a learning device to give instructions to enhance the students' learning and retention Aslan and Dogdu, (2013). This technology motivates and conveys dynamism to the classroom and reduces time in learning. ICT can upgrade the nature of instruction by intensifying learner inspiration and instructor training, which are the establishments of higher order thinking aptitudes Aslan and Dogdu, (2013).

Basically, ICT has changed the learning behaviour where it has entered the classrooms to be a part of the educating and learning process Agrahari and Singh, (2013). It is considered to be the most effective medium of mass communication, which has altered the instructional process in many ways. Poulter and Basford (2013), states that ICT is an instructing device and its potential for enhancing the quality and principles of students' education is noteworthy. The ICT program is more viable than the conventional teaching approach. Therefore, be prepared for effective learning and the quality of learning will be improved Moore and Kearsley, (2013). One more advantage of introducing ICT in schools is that the learners who do not have accessibility at homes may have the opportunity to utilize them in schools. It can be utilised as a learning device to give instructions to enhance the students' learning and retention Aslan and Dogdu, (2013). This technology motivates and conveys dynamism to the classroom and reduces time in learning. It is considered to be the most effective medium of mass communication, which has altered the instructional process in many ways. Poulter and Basford (2013), states that ICT is an instructing device and its potential for enhancing the quality and principles of students' education is noteworthy. The ICT program is more viable than the conventional teaching approach in terms of students' achievement scores.

According to Ajayi (2008), the use of ICT facilities involves various methods which include systematised feedback system, computer-based operation/network, video conferencing and audio conferencing, internet/worldwide websites and computer assisted instruction. It must however be stressed that the effective use of the various methods of the ICT in teaching learning depends on the availability of these facilities and teachers' competence in using them.

Teachers need to be supported to get the most from using ICT in classrooms. The implementing technological solutions need to ensure that they are context-specific, and adapted to local needs and conditions. It is also imperative that ICT programs are sustainable or effective by ensuring that the technologies embedded within them meet the demands of users in appropriate ways. There is a clear difference between teachers who choose

ICT resources to enhance understanding of a particular topic, and those who choose resources merely to present students work in a new way without any direct application to the topic.

ICT Skills Needed by Teachers

The literature describes different kinds of skills teachers should have required to integrate ICT in new student-centred learning approaches. According to Wamakote, (2010) the successful integration of ICT into the classroom depends on the ability of teachers to structure their learning environments in non-traditional ways, merging technology with new pedagogies. This requires a very different set of classroom management skills to be developed, together with innovative ways of using technology to enhance learning and encourage technology literacy, knowledge deepening and knowledge creation (Wamakote, 2010).

According to Wamakote (2010), the teacher development program has a crucial component for ICT skills needed by teachers. It ideally coordinates teachers' sophisticated professional skills with the pervasive use of technology. This in turn supports students who are creating knowledge products, and who are engaged in planning and managing their own learning goals in a school that is a continuously improving, learning organisation (Wamakote, 2010). However, identifying which competencies each teacher needs to acquire is far from simple, as this depends very much on the circumstances of their particular school. Personal teaching styles also play a major role. Again, "one size fits all" does not usually work (Davis, 2009).

The United Nations Educational, Scientific and Cultural Organisation (UNESCO) ICT competency standards for teachers go further, describing three approaches: technological literacy, knowledge deepening, and knowledge creation. These approaches are seen as part of a development continuum, and each approach has different implications for education reform and improvement, plus different implications for changes in the components of the education system: Pedagogy, teacher practice and professional development, curriculum and assessment, and school organisation and administration (UNESCO, 2008).

Benefits of ICT to Secondary School Leaders

Today's secondary schools without any doubt require leaders who can interpret appropriately and favourably disposed to the knowledge of ICT so as to ensure their effective job performance. According to (Omotay, 2012), the place of ICT in secondary school administration therefore cannot be overemphasized considering the problems of over enrolment of students, shortage of instructional materials and human resources, inadequate infrastructural facilities coupled with poor funding of secondary education which appear to be militating against effective secondary school administration. They added that, the level of principals' ICT awareness in secondary school administration in developing nations was low, many of the principals seem not to have the basic knowledge of ICT facilities such as computers and internet. Olaleye (2010), also portrayed in their study that, as the world changes, information and knowledge change rapidly. Learning processes as well as the management of schools also have to change.

Administrative functions in schools are becoming increasingly complex in terms of increasing number of students and teachers or other administrative staff, society's demands to education, economic, political, social, technological and other related factors. This complexity requires the use of powerful administrative tools such as computers and other ICT tools, resulting in better communication, efficient operations and better personal and community services in educational settings. According to Olaleye, (2010), the evolution of the computer and its capability to handle diverse kinds of problems has facilitated the mounting challenges created by the staggering development in secondary school. They are also emphasised that, the knowledge of ICT by school administrators is necessary in the areas of budgeting, collection of student data, recording of results and effective keeping of school records, different data processing and programming such as data on staff, teaching and learning etc, also be done through the effective use of ICT in schools (Olaleye, 2010). Consequently, the educational planners and administrators need to have adequate and accurate data of student enrolment, school personnel i.e., academic and non-academic staff and school records for effective planning and management of schools. One cannot overestimate the utilisation of ICT in everyday activities of the school (Olaleye, 2010).

Aboderin (2009) encompasses ICT as the broad fields of information and communications by means of computer and telecommunication; tools that are being increasingly used for organization or personal information processing in all sectors of economy and the society as a whole. According to Uwadia (2009), ICT serves as a tool for increased productivity and effective decision making. For instance, the knowledge of ICT can be explored by the secondary school administrators to ensure teachers effective delivery of services, effective communication, effective maintenance of sound students record system and maintaining academic planning record system among others.

Factors Influencing the Use of ICT at Secondary Schools

Many research results clearly showed that there are many factors and barriers that affect the use of technology in the education process in general and classroom in particular. Hennessy, (2010) identified a range of physical and cultural factors that affect ICT use by teachers, including lack of reliable access to electricity, limited technology infrastructure (especially internet access, bandwidth, hardware and software provision), language of instruction and available software; geographical factors such as country size, terrain and communications; demographic factors such as population size, density and dispersion. They also added that the issues of access are further exacerbated by extreme poverty, growing prevalence of HIV/AIDS, and a lack of political will to alleviate the situation through proper planning. In addition, they emphasised that educational factors including levels of teachers' own education and literacy rates, and access to professional development play an important role. Psychological factors of a teacher's own belief and attitudes to ICT and pedagogical innovation are primary barriers (Hennessy, 2010).

Indeed, many studies indicated that, it is teachers' attitudes, expertise, lack of autonomy and lack of knowledge to evaluate the use and role of ICT in learning (or technophobia in teachers) that are the prominent

factors hindering teachers' readiness and confidence in using ICT support. There is also a general inadequacy of learning resources, course curricula and other learning materials that incorporate ICT use (Hennessy, 2010).

It is also identified that school administrators offer very little structural support and few incentives to use the technology effectively in the classroom. Too often the curriculum in developing countries is rigid and overloaded, leaving little time for innovative classroom practises (Hennessy, 2010). They also added that national policies need to make more commitment to helping teachers effectively integrate computers and internet technologies into the classroom by aligning curricula, exams, and incentives with the educational outcomes that they hope to gain. In the end, computers by themselves bring very little to the learning process – they are only tools for learning (Hennessy, 2010).

Balanskat (2010) portrayed that there are a variety of boundaries, such as, the lack of ICT skills that could limit teachers in using ICT tools. Also, there is reluctance in many teachers towards the use of ICT. Many of them did not want to increase their personal burden for reasons of old age and lack of desire to displace conventional methods, as well as a fear of wasting time by using technical means. They also point out the lack of incentives and encouragement from those responsible for the promotion of ICT. In particular, a lack of interest and disregard of infrastructure requirements of ICT from decision-makers.

Accordingly, they may feel isolated and somewhat despondent. Furthermore, there may well be a lack of motivation and encouragement from school managers and Ministries, impacting on a teacher's confidence in trying out new ideas in their classroom (Balanskat, 2010).

Policy and strategies of ICT in Education

The Ministry of education stated that, during the implementation of ESDP IV, quality improvement strategies will address several complementary challenges. Against this background, quality improvement strategies under ESDP IV for primary and secondary education will consist of five components: the development of teachers and leaders; curriculum, textbooks and assessment; planning of school improvement and of resource use by schools; the use of Information and Communications Technology (ICT); the improvement of school infrastructure and facilities (Ministry of Education, 2010).

The government will continue the expansion of ICT use in education in order to improve the quality of teaching and learning. For such quality improvement to occur, it is necessary to go beyond the provision of more ICT infrastructure (Ministry of Education, 2010). According to the ministry of education, strategies will therefore cover three main areas to improve the linkage between ICT and quality (Ministry of Education, 2010).

1. It is the intention to develop and implement a technology responsive ICT national curriculum for primary, secondary and higher education as well as for other educational institutions. New TV programs will be prepared in line with the revised curriculum.

2. A second area of great importance concerns teacher training and awareness raising. Efforts will be continued to reinforce the skills of teachers to use ICT efficiently and a program will be developed to train a critical mass of computer literacy teachers.

3. Finally, further work will need to be done to expand access of schools to ICT infrastructure to allow more students and teachers to benefit from the more widely available global information sources.

These will help the development of an e-learning culture among students and teachers. In this regard, the national school net project needs to be further expanded. At the same time, high capacity content servers will be installed in more secondary schools (MoE, 2010). The educational television programs will be broadcasted through 12 satellite channels. Problems of maintenance may occur and therefore the technical capacity in maintenance of ICT equipment at regional level will be expanded (MOE, 2010).

Empirical Studies

Isukpa, M. E. (2014) carried out a study for enhancing the teaching and learning of computers studies in secondary schools in Ebonyi state. The study adopted a survey research design. Four research questions were formulated to guide the study. The sample of the study consists of 190 junior secondary (JSS2) computer students and computer teachers (100 students and 90 teachers) drawn from the three selected local governments in Ohaukwu education zone 1 of Ebonyi state using simple random sampling. The computer test was validated by two expert reviewers who rated the item. A 33-item questionnaire was formulated and administered to 190 respondents, which include computer teachers and computer students from eighteen secondary schools in the three zones of the state. Frequency and simple means used were for data analysis. The result of the study revealed that appropriate methodology, adequate facilities, employment of qualified teachers, instructional materials are needed to develop problem solving skills to boost students' learning abilities in teaching and learning of computers in secondary schools. This is very much related to this work in that both works identified methodology and training of teachers as a strategy for improving or enhancing teaching and learning of computers studies in secondary schools. However, this study has similarities with the present works but differs in scope and area.

Bukaliya & Mubika (2011) carried out a study on the Implications for Computer Education in Zimbabwean Secondary Schools, this study examined the ICT competences of rural and urban day secondary school teachers in Chegutu District, Mashonaland West Region. The study looked into the training and literacy levels of computer usage by the practitioners with a view to find out the areas of strengths and weaknesses in ICT usage. Upon identifying weaknesses, the study aimed at providing recommendations for improvement. One hundred and twenty out of 320 secondary school teachers participated in the study by providing data which was sought through the use of questionnaires and a competence practical test. The instruments required information on ICT training background, competence and literacy level of the educators. Results reveal that the majority of the teachers were computer illiterate because they were not exposed to ICT training or the

practical hands on experience. A significant number had no formal ICT qualifications. A few, however, had a diploma in computers while none had a degree. Results from the practical test given indicate that the majority of the respondents were not able to use the basic software in computers for lesson delivery.

Further indications are that teachers lack the necessary skills and knowledge of computers. In terms of applicability of the packages, teachers' weak knowledge levels show that their competence in ICTs for classroom use still lags behind. Challenges to ICT competence were identified as lack of adequate computer hardware, limited knowledge on how to make full use of ICTs in the classrooms and limited understanding on how to integrate ICTs into the teaching processes. To counter the effects of challenges, schools should fundraise in order to purchase computers. Staff development in ICTs should also be undertaken. All stakeholders should take part in mobilizing resources for ICT resource centres. Teacher training institutions should offer ICT training to student teachers during their residential courses. This is very much related to this work in that both works identified methodology and training of teachers as a strategy for improving or enhancing teaching and learning of computers studies in secondary schools. However, this study has similarities with the present works but differs in scope and Area.

Aboderin & Olukayode Solomon (2014) did case study research on Factors Militating against the Implementation of Computer Education in Secondary Schools in Ondo State South West, Nigeria. This study examined the quality and adequacy of the Computer Studies teachers, the extent of the availability of the teaching resources used in teaching Computer Studies as the determinants of the implementation of Computer Education. A total of seventy two (72) respondents formed the sample size of the study. Multi-stage sampling technique was used to select the sample for the study. 75% of the sampled population were from the private secondary schools while 25% belonged to the public secondary schools. Meanwhile, 8.3% of the public schools investigated do not offer Computer Studies. Computer Teachers Quality and Adequacy Questionnaire (CTQAQ) and Teaching Resources Checklist (TRC) were used for data collection. The result revealed that 62.9% of Computer Studies teachers are qualified to teach the subject and it is of note that 54.5% of the subject teachers teach another subject along with Computer Studies.

Considering the teaching resources, 61.1% of the sampled schools have desktop Computers and 50.0% make use of laptop Computers. The findings of this study revealed that there is a significant improvement in the implementation of Computer Education curriculum in Osun State secondary schools and this is based on availability of manpower and teaching resources that are relatively available. The study therefore concluded that, for the state to realise its objective of building a critical mass of ICT professionals and ICT knowledgeable workforce that can effectively drive state development objectives, whilst being globally competitive. Adequate attention should be given to Computer education at the secondary schools in the state. This is very much related to this work in that both works identified methodology and more attention should be paid by monitoring the learning activities in schools by the government. However, this study has similarities with the present works but differs in scope and Area.

Salem Al-Mamary (2020) also carried out a study which aims to examine the factors affecting the use of ICT in teaching from the perspective of Yemeni teaching. This study also proposes a model that considers crucial factors that may affect technology use in education. The researchers use the questionnaire to collect primary data and analyse the collected data by using SmartPLS software. A total of 120 teachers from two public and two private schools from Yemen participated in this study. Findings show that easy access to the ICT infrastructure, availability of support from technical support teams, time availability, and training for technology use are important factors that impact teachers' technology use in Yemen. This study adds to the existing literature by identifying factors accurately based on the tested model.

The model proposed in this study may assist the government in determining the factors influencing ICT usage and in exerting efforts into reducing or overcoming the challenges in technology use in teaching amongst schools and teachers. Studies on the most important factors for the successful ICT usage in the education sector in the Yemeni context are few. Nonetheless, this study identifies the important factors for the successful application of ICT in education in Yemen.

This is very much related to this work in that both works identified availability of support from technical support teams and easy access to ICT facilities for improving or enhancing teaching and learning of computers studies in secondary schools. However, this study has similarities with the present works but differs in scope and Area.

Summary of Related Literature

This study dwelt on the Challenges facing the use of ICT in teaching of computer studies in public secondary schools in Awka South Local Government Area. It was discussed under the following sub-heading: Conceptual Framework, Theoretical Framework, Theoretical Studies and Empirical Studies. Literature related to this study was reviewed such as Concept of ICT, ICT in Education System, and Importance of ICT in Education.

Theoretical framework of this study hinged on Downes and Siemens connectivism learning theories which explain the effect technology has on how we live, how we communicate, and how we learn. Theoretical studies reviewed The Need of Availability and Utilization of ICT Facilities in Teaching and Learning Process in Classroom by Teachers, ICT Skills Needed by Teachers, Benefits of ICT to Secondary School Leaders, Education in Nigeria, Factors Influencing the Use of ICT in Secondary Schools, and Challenges in using ICT in Teaching and Learning.

The study looked at some of the challenges that public secondary students face using ICT which are; inadequate funding, lack of internet access, schools with limited ICT facilities, lack of effective training, limited time, and lack of teachers' competency. These challenges need urgent attention if we are to make improvement in our education sector especially in our public schools and that calls for this study.

In Empirical studies, literature relevant to the present study was reviewed taking cognizance of the tenets of the research. The literature reviewed above outlined some challenges that prevent usage of ICT in teaching and learning in Ondo, researchers decided to find out if the same challenges or factors will also affect use of ICT in this area. Also, no research of this type from the knowledge of the researchers seems to have been carried out in Awka South Local Government Area. In order to fill this gap, the researchers deemed it necessary to carry out this research.

CHAPTER THREE

METHOD

This chapter is focused on the procedures adopted by the researchers for data collection and analysis, in order to answer the research questions. This chapter is organised under the following sub-headings: - Design of Study, Area of study, Population of Study, Sample and sampling techniques, Instrument for data collection, Method of data collection, Validation of instrument, Reliability of the Instrument, Method of data analysis.

Research Design

This study adopted a survey research design, According to Nworgu (2015), a survey design is one in which a group of people is studied by collecting and analyzing data from only a few people or items considered to be representatives of the entire group. The design is appropriate for the study because opinions of the students will be used to identify the challenges facing the use of ICT in teaching and learning of computer studies in public secondary schools in Awka south local government area.

Area of study

The study was carried out in Awka South in Anambra State. It is one of the five Awka education zones. Awka south local government area is made up of nine towns, namely, Amawbia, Awka, Ezinato, Isiagu, Mbaukwu, Nibo, Nise, Okpuno and Umuamalu. There are three major streets that span this area, which are the Zik Avenue, works road and Arthur Eze Avenue. In the past, the people of Awka South LGA were well known for blacksmithing. Today, they are respected among the Igbo people of Nigeria for their technical and business skills. The reason for carrying out this investigation in Awka south is because this kind of study has not been conducted in the area. This therefore made the area suitable for the study.

Population of study

The population of the study comprises 1,533 public senior secondary two students (SS2) and 43 teachers from the 18 public secondary schools in Awka South (Source: Ministry of Education, Awka). The reason for selecting the SS2 students is because students in SS2 are not in exam class, and they have chosen whether to study science or arts. (Source: Ministry of Education, Awka).

Sample and sampling Techniques

The sample for the study consists of 180 students and 20 teachers. The technique for selection of samples for this study was a multi stage sampling technique. In stage one, a simple random sampling technique, specifically a balloting method, was used to select 5 schools from the Local government area. Among the five selected schools, the researchers used a purposive sampling approach to select SS2 students and teachers. The researchers further used simple random sampling to select classes used for the study.

Instrument for Data Collection

The researchers made use of structured questionnaires as the instruments for data collection. The questionnaire was developed by the researchers based on the information gathered from the review of related literature. The questionnaire was made up of two sections A and B. A concerns the respondents' personal data. Section B was divided into four parts which consists of 21 items.

The students and teacher were expected to give their responses on a four-point (4 – 1) rating scale which ranged from Strongly Agree (SA) - 4 point, Agree (A) - 3point, Disagree (D) – 2 point and Strongly Disagree (SD) – 1 point.

Validation of Instrument

The designed questionnaire was validated with regard to its relevance to the purpose of this study by the supervisor and three other experts in the field of science education in the Faculty of Education, Nnamdi Azikiwe University Awka.

The validators were requested to examine the items, language of construction and ascertain the extent to which the language was clear and items suitable at purpose for which they were intended. Items that were not in-line with the research items were discarded and replaced with suitable items with the help of validators. The replacement of valuable items improved the questionnaire.

Reliability of the Instrument

In testing for reliability, a test-retest method was used; this is because the instrument was multiple rated. A pilot test was carried out in a secondary school in Njikoka Local Government Area that was not part of the study area. Twenty questionnaires were administered. The data collected was analysed to ascertain the reliability coefficient using the Cronbach Alpha. A reliability index of 0.76 was obtained which attest that the instrument was reliable.

Method of Data Collection

The questionnaires used for collection of data were delivered by the researchers. The researchers adopted a “return on the spot” procedure to avoid loss of the questionnaire. The instrument was distributed and retrieved

immediately with the help of the teachers to ensure absolute return rate of the instruments.

Method of Data Analysis

Descriptive statistics which include the mean and standard deviation were used to answer and describe the data for twenty-one (21) questionnaire items. The response options as contained in the questionnaire using four-point like scale were weighted as follows:

Strongly Agree (SA) = 4

Agree (A) = 3

Disagree (D) = 2

Strongly Disagree (SD) = 1

The cut-off point was determined by finding the mean of the nominal values assigned to the option using this formula

$$X = \frac{\sum fx}{N}$$

N

Where x = mean of the sample

Σ = Summation sign

F = Frequency

X = Nominal values

N = Total number of items.

Therefore, the cut-off point which is considered as the minimum score in any item obtained in a research question determined by adding the nominal values together and dividing by the total number of the nominal values as shown

$$= 4 + 3 + 2 + 1 = 10$$

$$\text{Mean} = 2.5$$

Decision Rule

A mean score of 2.5 and above in a four-point Likert scale was considered accepted while any item with mean score below 2.5 was considered rejected.

CHAPTER FOUR

RESULTS

This chapter presents the results of the analysis of data collected for the study. The data were interpreted using tables and were organized and analyzed according to research questions addressed by the study.

Research Question One: What are the challenges facing the use of ICT in teaching and learning of computer studies in public secondary schools?

Table I: Responses on the challenges facing the use of ICT in teaching of computer studies.

S/N	Item Statement	SA	A	SD	D	T	M	Remarks
1	Irregular maintenance of ICT equipment or facilities hinders the usage in teaching student	120	60	5	15	200	3.4	Accepted
2	Inadequate electricity supply hinders the usage in the teaching and learning of ICT	116	50	10	24	200	3.3	Accepted

3	Lack of funding by the government militate against the use of ICT facilities in teaching and learning of ICT	103	50	17	10	200	3.1	Accepted
4	Lack of internet access militate against use of ICT in teaching or learning of ICT	97	60	20	23	200	3.2	Accepted
5	Large class size militates against the use of ICT in teaching and learning of computer studies	40	117	17	26	200	2.9	Accepted

6	Length of time allocated does not give room for using ICT in teaching and learning of computer studies	50	100	24	26	200	2.8	Accepted
7	The fear of replacing a damaged ICT tools hinders the teachers from using the item	100	50	26	24	200	3.1	Accepted
8	There are enough computers in my school laboratory	22	30	98	50	200	2.1	Rejected
9	There is constant electric power supply in the laboratory	63	10	17	110	200	2.1	Rejected

10	The computer system is too difficult to operate.	125	48	7	20	200	3.3	Accepted
11	I have limited knowledge about ICT.	148	30	12	10	200	3.5	Accepted
12	There is no access to personal computer.	155	40	0	5	200	3.7	Accepted

Results presented in table I show that the respondents accepted that all the factors in item No 1, 2, 3, 4, 5, 6, 7, 10, 11, & 12 are the challenges facing the use of ICT in teaching and learning of computer studies in public secondary schools. This was clearly indicated from their respective mean scores which are above the criterion of acceptance level fixed at 2.5 and above. The only challenges disagreed with were item No 8 and 9 which stated that there are enough computers in the school laboratory and there is constant electric power supply in the laboratory. Both had a mean score of 2.1. This shows that even the available ICT facilities are not effectively used in teaching and learning of computer studies, since, there are limited computers and lack of constant electric power supply in the school laboratory.

Research Question Two: What are the possible solutions to the challenges facing the use of ICT in teaching and learning of computer studies?

Table II: Responses on the solutions to the challenges facing the use of ICT in teaching and learning of computer studies

35

S/N	Item Statement	SA	A	SD	D	T	M	Remarks
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13	Government should provide funding to schools for computer procurement	180	10	8	2	200	3.8	Accepted
14	Provision of technical support by the government to schools to assist the proper use of ICT facilities.	160	30	6	4	200	3.7	Accepted
15	Proper maintenance and repairs of ICT facilities should be made available in the school	177	20	0	3	200	3.8	Accepted
16	There should be regular in-service training for computer teachers	90	88	10	15	200	3.2	Accepted
17	Providing of access to the internet	148	30	15	7	200	3.5	Accepted

18	Provision of enough power supply	108	62	12	18	200	3.3	Accepted
19	Granting enough time for teachers and students to practice using ICT facilities in the laboratory.	132	50	10	8	200	3.5	Accepted
20	Schools should make it compulsory for all teachers to take part in ICT training	97	83	16	4	200	3.3	Accepted
21	Providing enough security to protect ICT facilities from theft.	40	118	16	26	200	2.8	Accepted

22	Internet service providers should grant schools free internet access for browsing.	180	20	0	0	200	3.9	Accepted
23	Awarding of personal computers like laptops, tablets to students and teachers to boost learning activities.	163	33	1	3	200	3.7	Accepted
24	Monitoring ICT usage in schools by the government to ensure the use of ICT facilities.	36	127	16	21			200 2.8 Accepted

From the above table II, the results clearly indicate that the respondents agreed on the possible solutions to the challenges facing the use of ICT in teaching and learning of computer studies. From the item statement No.22 which states that internet service providers should grant schools free internet access for browsing have a mean score of 3.9, which is the highest mean score from the table. While Items No. 21 and 24 which states providing enough security and monitoring ICT usage had the lowest mean scores 2.9, which is equally above the criterion mean of 2.5.

Summary of findings

The findings of this Research revealed that there are several factors that face the use of ICT in teaching and learning of computer studies in public secondary schools. These include economic factors like Inadequate funding from the Government for procurement of ICT facilities, the equipment related factors such as lack of electricity, Human and Administrative factor like lack of technical expert in the school that can deal with maintenance issues and resolving problems are also inadequate preparation on the part Federal and State government in terms of planning and execution of ICT project.

The study also identified the possible solutions to the challenges facing the use of ICT in teaching and learning of computer studies includes; government to provide enough funding for the procurement of ICT facilities, internet service providers should grant free internet access to schools to enable the use the available ICT facilities, schools to provide proper security measures to safeguard the ICT facilities, and the government to ensure continuous in-service training for ICT teachers.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATION

This chapter discusses the result of the findings under the following sub-headings discussion of findings, conclusion, and implication of the study, recommendation, and suggestion for further study.

Discussion of Findings

The Challenges Facing the use of ICT in Teaching and Learning of Computer Studies in Public Secondary Schools

From the table I, Findings of research question 1 revealed the challenges facing the use of ICT in teaching and learning of computer studies in public secondary schools include: lack of internet access, limited knowledge about ICT, inadequate supply of electricity, lack of funding by the government, irregular maintenance of ICT facilities and lack of technical expert. This gives credence to the findings of Hadi Salehi (2012) who identified little access to internet and unstable power supply as challenges that prevent the using of ICT in Education.

Also, the result of this finding is in agreement with the study made by Jacob and Dahir (2021), they noted some challenges that affect public school students from using ICT for learning to include: inadequate funding of ICT programme, inadequate ICT facilities, poor internet services and high cost of ICT facilities. The findings of this study correspond to the study made by Jegede and Deborah (2019), they found out the challenges facing the administration of ICT infrastructural facilities in public schools in Nigeria to include; shortage of ICT manpower, poor policy implementation, poor network services and poor ICT literacy.

Additionally, the findings of this study are consistent with those of Shadreck (2015) that unavailability of infrastructure, lack of ICT competence, lack of in-service training and technical support are the teachers' perceived challenges that prevent science teachers from using ICT in the classroom for teaching.

The Possible Solutions to the Challenges Facing the Use of ICT in Teaching and Learning of Computer Studies

From Table II, Findings from research question 2 revealed that the possible solutions to the challenges facing the use of ICT in Teaching and Learning of Computer Studies includes; Government to provide funding to schools for computer procurement, provision of technical support by the government to schools, Provision of enough power supply, internet service providers to grant free internet access to schools, monitoring ICT usage in schools by the government and providing adequate security for the available ICT facilities. The solutions are in agreement with the findings of Ogunode Niyi (2020), he noted that the way forward to the challenges preventing students from using ICT for in Learning in Nigeria includes; the internet services providers to improve on the quality of services, the students and lecturers to be trained on computer literacy, a policy that allows students and lecturers own a laptop or computer, the government to provide enough for procurement of ICT facilities by schools, and also the government to reduce the cost of ICT facilities in the country.

Equally, this solution is in consonance with the findings of Ogunode (2021) who through his study determined that the way forward for ICT usage in schools in Nigeria involves; the government to ensure stable power supply, the government to ensure constant internet services, the government to organize constant training for teachers, and the government to provide schools in the country with adequate ICT facilities.

Furthermore, the solutions as obtained from this study gave credence to the findings of Njagi Njoka (2020), who suggested that the way forward to the challenges facing ICT integration in public secondary schools include; continuous in-service training of teachers, upgrade of ICT software, adequate security measures for ICT facilities in schools, and deliberate budgetary provisions by the government.

Conclusion

This research explored the challenges facing the use of ICT in teaching and learning of computer studies in public secondary schools in Awka South Local Government Area. The intention was to understand the impact these challenges have on teaching and learning. The findings indicate the relevance of ICT resources in the classroom and the negative implications of the lack thereof. The challenges facing the use of ICT frustrate the hopes and aspirations of learners and prevent them from enjoying the benefits associated with the introduction of ICT facilities into the classroom. The prevailing circumstances in public secondary schools indicate that the federal and state government needs to review its ICT integration plans and policies concerning how it identifies and attends to challenges faced by public secondary schools.

We, therefore, recommend that the federal and state government should revamp its monitoring and evaluation mechanisms to identify and resolve challenges related to ICT availability and usage in public secondary schools. Our perception is that such an approach will contribute to ensuring that existing resources do not remain unused or underutilized, or become stolen due to security concerns. Such occurrences would mean a major setback in the Government's endeavors to ensure that all children receive a quality education, in an era where technology is increasingly becoming a teaching and learning mode of choice.

Since the Government may not have enough capability to assist all schools in all dimensions, we also recommend that schools collaborate, through partnerships with communities, to ensure safer public secondary schools. The vandalism and theft of ICT equipment in public secondary schools during the lockdown caused by COVID-19 are due to porous security in schools with technological resources, thus validating the need for security measures as suggested. More research on ICT-related challenges around the country is needed to provide a holistic picture of the problem to provide more data for government action going forward.

EDUCATIONAL IMPLICATION

The findings from this study have generated some educational implications that teaching and learning approaches in Computer studies should change from teacher-based instruction to learner-based learning. In order to achieve these teachers, need to be trained formally on how to apply ICT facilities in the teaching and learning of Computer studies, not only this formal training but also need to sustain on-going training to help them integrate ICT into their teaching and learning of Computer studies. Here ongoing training implies workshop seminar, symposia (that is, in service training).

The positive attitudes of both educators and learners towards the impact of ICT resources in teaching and learning make it apt to argue that having a computer laboratory that continuously functions has the potential to increase learner educational aspirations, motivation and the desire to learn Denoon-Stevens & Ramaila (2018). Unfortunately, the lack of ICT resources and other related factors cripples the zeal of using technology in the classroom. Similarly, Comi, Argentin, Gui, Origo, and Pagani (2017) noted that the level of learner motivation and a potentially positive change in perceptions towards learning depends on teachers' ability to integrate ICT in classroom spaces. Such effectiveness, in the view of Steiner and Mendelovitch (2017, p. 1259), occurs when educators use ICT resources to promote higher-order thinking through the usage of the necessary applications appropriate for teaching specific subjects.

For Hegedus and Moreno-Armella (2020), the introduction of new software and hardware technologies presents an added advantage in teaching and learning in specific subjects, including Computer studies. This reiterates the important role ICT plays in a teaching and learning environment.

Recommendations

Based on the findings of the study, researchers recommend the following;

1. Government should provide budgetary allocation for the provision of ICT facilities. 2. Internet service providers should provide free internet access to schools to enable them to utilize the available ICT facilities.
3. The school administrators should ensure the safety of the available ICT facilities by providing adequate security measures.

Limitation of the study

The time frame for this study was limited, thus, the researchers found it difficult to cover all the school in the area.

Suggestion for Further Study

The researchers suggest the following;

1. The challenges facing integration of ICT in co-educational schools in Awka South Local Government Area.
2. The challenges facing the usage of information and communication technology in tertiary institutions in Anambra State.

Summary of the Study

The summary of this research revealed that there are several factors that affects the use of ICT in teaching and learning of computer studies in public secondary schools in Nigeria, it was found that there are several challenges that hinder the effective use of ICT in this context. These challenges include a lack of access to ICT infrastructure, such as computers and the internet, as well as a lack of trained teachers who are able to effectively incorporate ICT into their teaching. Additionally, there is a lack of adequate funding for ICT in schools, which limits the ability to purchase and maintain necessary equipment.

To address these challenges, the study recommends several possible solutions. These include providing teacher training programs to help teachers learn how to effectively integrate ICT into their teaching, increasing funding for ICT in schools to improve access to equipment and technology, and implementing policies and programs to promote the use of ICT in education. Additionally, the study suggests that there should be a focus on building the necessary infrastructure, such as internet connectivity, to support the use of ICT in teaching and learning. Overall, addressing these challenges will require a concerted effort from both government and education stakeholders to ensure the successful integration of ICT into the teaching and learning of computer studies in Nigeria's public secondary schools.

REFERENCES

Adewopo. (2015). Role of the Court in the Interpretation and Development of Intellectual Property Law. *The Nigerian Experience. The Gravitas Review of Business & Property Law*, 6(1).

- Adomi, E. E., & Kpangban, E. (2010). Application of ICTs in Nigerian secondary schools. *Library philosophy and practice*, 1.
- Al-Mamary, Y. H. S. (2020). Examining the factors affecting the use of ICT in teaching in Yemeni schools. *Journal of Public Affairs*, e2330.
- Bukaliya, R., & Mubika, A. K. (2011). Teacher competence in ICT: implications for computer education in Zimbabwean secondary schools. *International Journal of Social Sciences & Education*, 1(4).
- Chiroma, H., Abdulhamid, S. I. M., Abdul—Salaam, Y. G., Usman, A. M., & Maigari, T. U. (2011). Academic community cyber cafés Perpetration point for cybercrimes in Nigeria.
- Chukwuere, & Onyeukwu. (2017). *Influence Of Information Communication and Technology on Social Life and Academic Performance of Students in Imo State University*. <https://projectgate.com.ng>.
- Deppeler, J., Loreman, T., & Smith, R. (2015). Teaching and learning for all. In *Inclusive pedagogy across the curriculum*. Emerald Group Publishing Limited.
- Esharenana, A., & Kpangban, E. (2010). Application of ICTs in Nigerian Secondary Schools.
- Evey, C. K., Emmanuel, O. O., Joseph, A., Denis, U., & Asinde, F. A. (2010). The need for ICT in secondary schools' curriculum in Nigeria. *Nigerian Journal of Teacher Education and Teaching*, 8(2), 183-192.
- Goar, N. S., Buwah, J. S., & Duktur, S. L. (2021). Challenges Of Teaching and Learning Entrepreneurship in Business Education in Nigeria. *Nigerian Journal of Business Education (NIGJBED)*, 8(1), 79-85.
- Gujjar, Khan, & Ramza. (2010). A study to evaluate the availability and utilisation of physical and instructional facilities in secondary schools in Bajaur Agency.
- Hashim, A.-S., & Kutbi. (2015). Perceptions of Social Media Impact on Social Behaviour of Students. *A Comparison between Arts and Science Faculty*.
- Hennessy, S., Harrison, D., & Wamakote, L. (2010). Teacher factors influencing classroom use of ICT in Sub-Saharan Africa. *Itupale online journal of African studies*, 2(1), 39- 54.
- Isukpa, M. E. (2014). Effect of role play method on students' academic achievement and interest in Christian Religious Studies in senior secondary schools in Ebonyi central education zone of Ebonyi State, Nigeria (Doctoral dissertation, University of Nigeria Nsukka).
- Jegede. (2013). Challenges of sustainability and urban development: A Case of Ado-Ekiti, Ekiti State, Nigeria. 1, 22-29.

- Kop, R., & Hill, A. (2008). Connectivism: Learning theory of the future or vestige of the past. *International Review of Research in Open and Distributed Learning*, 9(3), 1-13.
- Okoro, C. O., & Ekpo, E. E. (2016). Effects of Information and Communication Technology (ICT) application on academic achievement of students in Christian religious studies in Cross River State. *International Journal of Interdisciplinary Research Method*, 3(2), 14-24.
- Olajubu, E. A., Afolabi, B. S., & Ajayi, A. O. (2009). A customised e-shopping system for SMEs in developing countries: Cases from the sub-Saharan Desert of Africa. *International Journal on Advances in ICT for Emerging Regions (ICTer)*, 2(2).
- Ololube. (2013). The problem and approaches to educational planning In Nigeria: a theoretical observation. *Mediterranean journal of social science*, 4, 12.
- Onifade, O. Factors Influencing Computer Education Curriculum Implementation in Nigerian Junior Secondary Schools. *International Journal of Educational Researchers*, 9(3), 1-8.
- Onwugbonu, B. B. C., Singh, T. K. R., & Fook, F. S. (2015). Need for ICT integration for effective instructional delivery in Nigerian colleges of education. *Journal of Education and Practice*, 6(3), 51-56.
- Salehi, H., & Salehi, Z. (2012). Challenges for using ICT in education: teachers' insights. *International Journal of e-Education, e-Business, e-Management and e-Learning*, 2(1), 40.
- Silviyanti, T. M., & Yusuf, Y. Q. (2015). EFL Teachers' Perceptions on Using ICT in Their Teaching: To Use or to Reject. *Teaching English with Technology*, 15(4), 29-43.
- Sumardi, L., Rohman, A., & Wahyudiati, D. (2020). Does the Teaching and Learning Process in Primary Schools Correspond to the Characteristics of the 21st Century Learning. *International Journal of Instruction*, 13(3), 357-370.
- Vanguard. (2021). Information and communication for Development.

APPENDIX A

LETTER OF INTRODUCTION

Department of Science Education

(Computer Science Education)

Faculty of Education,

University of Nnamdi Azikiwe,

Awka.

Dear Respondents,

We are students of the above information undertaking a research work on the Challenges Facing the Use of ICT in Teaching of Computer Studies in Public Secondary Schools Awka Local Government Area.

We will be very grateful if you could fill these questionnaires as reasonable as possible. Be assured that any information you provide will be used solely for the purpose of this study.

Thank you for anticipated cooperation.

Yours Faithfully.

Davidson Chukwunedum

Ezeh Chuks Gaius.

APPENDIX B

QUESTIONNAIRE

INSTRUCTIONS

The questionnaire is divided into two sections, A and B. Section A is about your personal information. Section B contains questions meant for this study.

Section A

Name of school..... **Section B:** Read through the statements, and for each, tick () on the answer that appeals to you.

Note: (SA) Strongly Agree.

(A) Agree.

(D) Disagree.

(SD) Strongly disagree.

The challenges facing the use of ICT in teaching and learning of computer studies in public secondary schools

S/ N	Item Statement	SA	A	SD	D
1	Irregular maintenance of ICT equipment or facilities hinders the usage in teaching students				
2	Inadequate electricity supply hinders the usage of ICT in the teaching and learning				
3	Lack of funding by the government militate against the use of ICT facilities in teaching and learning of ICT				
4	Lack of internet access militate against use of ICT in teaching or learning of computer studies				
5	Large class size militates against the use of ICT in teaching and learning of computer studies				

6	Length of time allocated does not give room for using ICT in teaching and learning of computer studies				
7	The fear of replacing a damaged ICT tools hinders the teachers from using the item				
8	There are enough computers in my school laboratory				
9	There is constant electric power supply in the laboratory				
10	The computer system is too difficult to operate.				
11	I have limited knowledge about ICT.				
12	There is no access to personal computer.				

The possible solutions to the challenges facing the use of ICT in teaching and learning of computer studies

S/ N	Item Statement	A	SA	D	SD
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13	Government should provide funding to schools for computer procurement				
14	Provision of technical support by the government to schools to assist the proper use of ICT facilities.				
15	Proper maintenance and repairs of ICT facilities should be made available in the school				
16	There should be regular in-service training for computer teachers				
17	Providing of access to the internet				
18	Provision of enough power supply				
19	Granting enough time for teachers and students to practice using ICT facilities in the laboratory.				

20	Schools should make it compulsory for all teachers to take part in ICT training				
21	Providing enough security to protect ICT facilities from theft.				
22	Internet service providers should grant schools free internet access for browsing.				
23	Awarding of personal computers like laptops, tablets to students and teachers to boost learning activities.				
24	Monitoring ICT usage in schools by the government to ensure the use of ICT facilities.				