



Explore the Use of Modern Technology for Teaching Effectiveness in Secondary Schools in Obio-Akpor Local Government Area of Rivers State

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Abstract

This study explored the use of modern technology for teaching effectiveness in secondary schools in Obio-Akpor Local Government Area of Rivers State, Nigeria. It investigated the availability and extent of utilization of modern technological tools such as computers, projectors, and internet facilities in classrooms. The study adopted a descriptive survey research design, sampling 178 teachers across five selected secondary schools. Data was collected using a structured questionnaire and analyzed using simple percentages. The findings revealed that while laptops and desktop computers are somewhat available, critical technological tools like digital projectors, media boards, and internet facilities remain largely absent. Furthermore, the extent of utilization of available technology is significantly low due to inadequate training, poor infrastructure, and lack of institutional support. The study highlighted the importance of integrating modern technology in education to enhance interactive learning, improve teaching efficiency, and prepare students for digital-age careers. It recommends increased funding, provision of necessary technological tools, and continuous teacher training programs to foster effective ICT integration in secondary schools.

Keywords: Use, Modern Technology, Teaching Effectiveness, Secondary Schools, Obio-Akpor, Rivers State.

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INTRODUCTION

In the 21st century, the term “technology” is an important issue in many fields including education. This is because technology has become the knowledge transfer highway in most countries. Technology integration nowadays has gone through innovations and transformed the

way people think, work and live. 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. The integration of Information Communication and Technology (ICT) in education refers to the use of computer- based communication into daily classroom instructional process. In conjunction with preparing students for the current digital era, teachers are seen as the key players in using modern technology in their daily classrooms.

The evolution of modern technology and its use in secondary schools such as Information Communication and Technology (ICT) have changed the way teaching and learning processes are being carried out. The world is an ever-changing place due to advances made in technology. Illustrations were used as a form of technology in the 17th century classroom, books and slates were used in the 18th century classrooms (Olaniyan & Olabanji, 2006) but in the recent times, there more advanced technological facilities used to effective teaching. Examples of such modern technology used include slides and opaque projectors, radios, motion pictures, microphone and tablet PCs.

The 21st century education emphasizes a technological-based education that is problem solving. Its curriculum is intended to develop in the students a higher order thinking skill, an effective communication skill, and the knowledge of technology that they will need for 21st century careers. The 21st century teacher is expected to be tech-savvy, computer literate, and at the cutting edge of education. They should operate learner-centered classrooms and personalized instructions, learn and apply new technologies, go global and digital, are smart with the use of technology, collaborate and connect with the world, be innovative, and keep learning thereby changing the role of teachers from repertoires of knowledge to facilitators of knowledge. More so, the 21st century education has a number of modern technologies that are geared toward enhancing teaching and learning of different subjects such as Mathematics, Basic science, History etc., of which Information and Communication Technology (ICT) is one of them. Hence 21st century teachers are expected to adequately and appropriately utilize the technologies in their classroom interactions for effective teaching. Before the advent of microcomputers in 1980s, mainframe computers were used to deliver drill and practice tutorials for teaching students lessons. In the era of globalization, educational organizations should become flexible, responsive and capable of adapting to change in order to ensure its survival.

Technology makes learning more interactive, more enjoyable and more customizable. It improves students’ attitudes towards and their interest in learning. Technology can improve student achievement as indicated by increases in standardized test scores when it is used to support instruction in the classroom. It is right to say that almost all ranges of subjects’ beginning from mathematics, science, languages, arts and humanistic and other major fields can be learned more effectively through technology – based tools and equipment.

Statement of the Problem

The emergence of modern Technologies for effective teaching has revolutionized the existence and activities of the contemporary man, especially in this era of globalization and new knowledge society. Also, it has been observed that most secondary schools have adopted the use of computers and other modern technologies and ICT devices to teach such use of modernized information management devices have always been enhancing teaching effectiveness. Meanwhile, it is not uncommon to find out that some secondary schools have not embraced these modern technologies for teaching effectiveness. Hence the talk and chalk method are still in use.

Thus, making teaching and learning boring and time consuming while others show little or no interest in embracing these modern technologies holistically.

However, one of the re-occurring criticisms against secondary schools in Obio-Akpor Local Government Area of Rivers State is the failure to use these modern technologies to enhance teaching and learning. This area of management failure has continued to cause students' mass failure in external examinations which are mostly computer based in this 21st century and leads to time wastage since teachers are not able to cover their scheme and curriculum. Unfortunately, it is not known at what capacity these secondary school teachers adapt to the current trend of modern technologies and whether they are utilized for teaching effectiveness in the schools. This forms the basis for the present study.

Purpose of the Study

The purpose of this study is to explore the use of modern technology for teaching effectiveness in secondary schools in Obio Akpor L.G.A of Rivers State with the purpose of achieving the following objectives:

- To determine the level to which modern technologies are available for teaching effectiveness in secondary schools in Rivers State.
- To examine the extent to which modern technologies are used for teaching effectiveness in secondary schools in Rivers State.

Research Questions

The following research questions guided the study:

- What are the modern technologies available for teaching effectiveness in secondary schools in Rivers State?
- To what extent are modern technologies used for teaching effectiveness in secondary schools in Rivers State?

CONCEPTUALIZATION

Information and Communication Technology

Information and Communication Technology (ICT) is basically the electronic-based system of information transmission, reception, processing and retrieval, which has drastically changed the way we think, the way we live and the environment in which we live in generally. Olorunsola, (2007) defined ICT as the handling and processing of information (text, images, graphs, instruction, etc.) for use, by means of electronic and communication devices such as computers, cameras, telephone. Similarly, Ufondu (2007) also defined ICT as electronic or computerized devices, assisted by human and interactive materials that can be used for a wide range of teaching and learning as well as for personal use. From these definitions, ICT could be defined as processing and sharing of information using all kinds of technologies for the manipulation and communication of information.

Technology

ICT integration in education generally means technology-based teaching and learning process that closely relates to the utilization of learning technologies in schools. Due to the fact that students are familiar with technology and they will learn better within technology-based environment, the issue of ICT integration in schools, specifically in the classroom is vital. This is because, the use of technology in education contributes a lot in the pedagogical aspects in which the application of ICT will lead to effective learning with the help and supports from ICT elements and components. It is right to say that almost all ranges of subjects' starts from mathematics, science, languages, arts and humanistic and other major fields can be learned more effectively through technology-based tools and equipment. In addition, ICT provides the help and complementary supports for both teachers and students where it involves effective learning with the help of the computers to serve the purpose of learning aids (Omokosi, 2009).

Computers and technology do not act as a replacing tool for quality teachers but instead they are considered as an add-on supplements needed for the better teaching and learning. The need for ICT integration in education is crucial, because with the help of technology, teaching and learning is not only happening in the school environment, but also can happen even if teachers and students are physically in distance. However, ICT integration is not a one-step learning process, but it is a continual process of learning that provides proactive teaching-learning environment (Ogunsola, 2005).

ICT can be used in various ways where it helps both teachers and students to learn about their respective subject areas. A technology-based teaching and learning offers various interesting ways which includes educational videos, stimulation, storage of data, the usage of databases, mind-mapping, guided discovery, brainstorming, music, World Wide Web (www) that will make the learning process more fulfilling and meaningful (Finger & Trinidad, 2002; Ghavifekr & Rosdy, 2015). On the other hand, students will benefit from ICT integration where they are not bounded to the limited curriculum and resources, instead hands-on activities in a technology-based course is designed to help them to stimulate their understanding about the subject. It also helps teachers to design their lesson plans in an effective, creative and interesting approach that would result in students' active learning. Previous researches proved that use of ICT in teaching will enhance the learning process and maximizes the students' abilities in active learning (Finger & Trinidad, 2002).

The Ministry of Education in Nigeria has formulated three main policies for ICT in education. The first policy insists on all students are given opportunity to use ICT. This is aimed to reduce the digital gap amongst the schools. The second policy focuses on the role and function played by ICT in education. Besides that another policy stressed on the use of ICT for accessing information, communication and as productivity tool (Opera & Ituan, 2009; FRN, 2014). However, infrastructure and facility of ICT is then needed to supply to the schools throughout the nation. A key factor in use of ICT is sufficient computer labs and ICT equipment. This is to ensure that subject teachers are easily access to ICT tools whenever needed (Ghavifekr & Rosdy, 2015). Lack of adequate ICT equipment and internet access is one of the key problems that schools specifically in rural areas are facing now. For example, in Rivers state, some schools have computer but this could be limited to one computer in the office only. Even in schools with computers, the student-computer ration is high. In addition, the report continues revealed that the schools with ICT infrastructure are supported by parents' initiative or community power (Theresa, 2010).

In most schools, technical difficulties sought to become a major problem and a source of frustration for students and teachers and cause interruptions in teaching and learning process. If there is lack of technical assistance and no repair on it, teachers are not able to use the computer for temporarily (Theresa, 2010). The effect is that teachers will be discouraged from using computers because of fear of equipment failure since they are not given any assistance on the issue. She further revealed that technical problems become a major barrier for teachers. These problems include low connectivity, virus attack and printer not functioning. However, there are a few exceptions.

Schools in countries like Netherland, United Kingdom and Malta have recognized the importance of technical support to assist teachers to use ICT in the classroom (Uche, 2006). In addition, teachers' readiness and skills in using ICT are playing essential role in the use of ICT in education. Teachers need sufficient ICT skills to implement the technology and to have high confident level to use it in a classroom setting. Besides, teachers require insight into the pedagogical role of ICT, in order to use it meaningfully in their instructional process. According to UNESCO (2005), teachers who have gone through ICT course are more effective in teaching by using technology tools as opposed to those that have no experience in such training. A school in Ireland reported that teachers who did not develop sufficient confidence avoided using ICT. Similar case happened in Canada, some teachers admitted they were reluctant ICT users because they worried, they might get embarrassed that the students knew more about the technology than they did (UNESCO, 2005).

Beyond basic skill training, schools had used a variety of strategies to provide further professional development for teachers. According to Ukonu (2005) the significance and advantages of ICT should be known by teachers in order to conduct a meaningful lesson with the use of ICT. Indeed, teachers should be sent to attend training courses to learn about integration ICT in teaching and learning process. Nonetheless, many school schools used peer-tutoring systems. A more skillful teacher in ICT would assist and guide another teacher who has less experience with ICT along the preparation work for teaching and learning process. As what has been discussed, there are many factors to enable the use of ICT in classroom teaching and learning. Begin with policy, follows by the supplement of all the ICT hardware and software facilities, continued by readiness and skills of teacher to integrate it into pedagogical process (Ukonu, 2005). Besides, technical support and continuous professional development in ICT should be conducted from time to time. In short, all parties must cooperate in order to bring the nation to become a country advance in technology.

Teachers' and Technology-Based Teaching

With the development of learning technologies in the late 20th century, education system has changed rapidly. This is due to the capability of technology to provide a proactive, easy access and comprehensive teaching and learning environment. Nowadays, Ministry of education in all over the world has provide a lot of facilities and training in order to enhance the use of advanced technologies in the countries' teaching and learning process. A high budget has been placed in order to provide the equipment needed by teachers to improve the education system. Despite all the efforts, most of the countries are facing similar problem whereby the teachers are not maximizing the usage of the technology provided (Okorie et al., 2006; Wangwe, 2007). This has become a serious matter as many previous researches have proven the usage of ICT in teaching and learning process could improve students'

Exploring the Use of Modern Technologies in the Classroom Context

Integration of ICT in classroom is getting more important as it help student in enhancing their collaborative learning skills as well as developing transversal skills that stimulates social skills, problem solving, self-reliance, responsibility and the capacity for reflection and initiative. All these elements are core values that students need to achieve in an active teaching and learning environment (Ghavifekr & Rosdy, 2015). Similarly, in Malaysia the government has implemented the integration of ICT in learning and teaching process in early 1970's. This is due to the importance of technology literate which produce critical thinking workforce to face and involve the country in the global economy. Accordingly, many schools were upgraded with computer's lab, the internet connection, smart white boards, LCD and other ICT tools and equipment. Despite all these, the problem faced was the teachers' skill and aptitude, technical support and stability of the system in order to implement the policy successfully. However, the government is still improving and upgrading the systems to be fully utilizing by ICT. The main goal of ICT implementation in education proclaimed the vision and missions of the government to promote ICT in education for the following intentions:

- To surround schools with dynamic and innovative learning environments for students to become more motivated and creative;
- To enable students to gain wider range of knowledge and be able to access to internet for developing a global outlook;
- To nurture students with capabilities of processing information more effectively and efficiently; and
- To develop students with attitudes and capability of life-long learning.

The new era of ICT in education should be developed rapidly to appropriate extent in order to matching the capability of students as well as teachers in educational experience due to the development of new information technology.

Thus, the application of ICT in teaching subjects offered in secondary school should be an integral part of Subjects offered in secondary school education. However, ICT in teaching will only be effective as the teacher using it. This is because the effective use of ICT requires careful planning from the teacher, especially in terms of lesson objectives, lesson contents, learning resources, learning environments, and learning experiences. Conducive learning environments are very much needed for effective application of ICT in the classroom. The teacher (Subject teacher) must also be acquainted with the affordances of the various ICT tools for appropriate, suitable and effective utilization hence, the dire need for the inclusion of ICT in Teacher education (subjects teacher's education), to equip prospective teachers with the relevant skills and knowledge needed to effectively apply ICT in teaching. Uchenna (2005) asserted that teachers needed a sound understanding of the tools available and their utilization for pedagogy which to him, without such an understanding, the learning and teaching tools such as Computers may become part of the problem rather than part of the solution to improve learning. This however erases the fear of teachers that technology will someday replace their role in the classroom thereby displacing them from their most cherished job.

Hence, to effectively transmit geographic knowledge and skills and achieve the goals of Subjects offered in secondary school education, teachers must acquaint themselves with the

knowledge and skills of ICT, and apply same in their instructional processes. This can be applied through the following modes as opined by (Uchenna, 2005).

As an Instructional Tool

Information and Communication Technology (ICT) can be used in the instructional process to enhance teaching, professionalize the teacher and the teaching profession, and improve the students' performance. It can be used in planning, developing and presenting the lesson, as well as managing the learning experiences and evaluating the instruction. These can be done using Information and Communication Technological (ICT) tools like Slides, Projectors, Televisions, Electronic/Interactive White boards, Computerized Blackboards, Computer systems, Routers, Modems, Smart phones, Remote Chalk boards, Personal Digital Assistants (PDAs), Digital maps, Presentation softwares, Spreadsheets, Word processors, Social networking apps, Desktop publisher, Virtual classrooms/E-classrooms, Virtual fieldtrips and laboratories, Computer-Based Instruction (CBI), Computer-Managed Instruction (CMI), Computer-Assisted Teaching (CAT), Computer-Assisted Instruction (CAI), Computer-Based Testing (CBT), Geographic Information System (GIS), Remote sensing, Computerized Cartography, Graphic softwares, E-Tutorials, Games and Simulation software, Models.

As a Communication tool

There can't be teaching without communication. Therefore, communication is key to teaching. The communication process must be clear, devoid of noise, and free from other barriers of communication for teaching to be effective. The communication channel must be such that will integrate the teacher and students in the process, through a democratic framework. Information and Communication Technologies (ICTs) like Smart phones, Computer systems, Projectors, Televisions, Tablets, Interactive White boards, Slides (Screens), Public Address systems (PA systems), Ipads, Personal Digital Assistants (PDAs), Router, Modem, Web 2.0, Video conferencing, Teleconferencing, E-mails, Skype, Social networking apps, etc, can be applied to enhance communication, bridge the communication gap, overcome the barriers of communication, break the limiting walls of face-to-face communication, and promote long distance communication.

As a Research tool

Research is an investigation into a particular problem with the aim of finding solution(s) to the problem. It is a platform for teachers to update themselves and professionalize their career. An effective research requires data acquisition and analysis, and information presentation. The use of Information and Communication Technologies (ICTs) like Computer systems, Smart phones, Tablets, Ipads, Router, Modem, Digital cameras, Circuit Camera Televisions (CCTVs), Photogram, Search engines (Google, Bing, etc.), Browsers (Firefox mozilla, Opera, Microsoft internet explorer, UC browser, CM browser, Google Chrome, etc.), Plug-ins (PDF reader, Adobe reader, WPS, VLC media player, etc.), E-books, Virtual fieldtrips and laboratories, Virtual libraries, GPS reader, Surfing software, Problem-solving software, Google Earth, Geographic Positioning System (GPS), etc., can help acquire and analyse data, as well as present information needed for research and problem-solving purposes.

As a Storage tool

Instructional designs, communicated messages, research reports, evaluation reports, etc, cannot just be discarded after first usage. They must be kept and stored for future reference purposes, in order to grow and develop skills continually. Such files (information) can be stored in Information and Communication Technologies (ICTs) like Flash drives, CD Roms, External Hard disks, Mini storage device (SD) cards, Micro storage device (SD) cards, Smart phones, Tablets, iPhones, Ipads, Computer systems, Word processors, Database Managements (DBMs), Spreadsheets, Graphic software.

Types of Information and Communication Technology (ICT) Gadgets

There are various types of ICT that are known to man and that are very much available to our today's users. Some of the basic ones as cited in Nwamara (2018) are as follows:

- **Cybernetics:** These are Cyber-cafes, which are basically for internet surfing or browsing.
- **Cable Television:** Is use for the watching of various channels, via the audio and visual display Units (Example: CTL, DSTV, Hi-TV, Go-TV and so on)."
- **Cable Radio:** It is a bigger Mobile Phones/Radio, with a one-way or single channel, which is basically for wider audio communication. Example: The companies Walking Talking or Radio per se.
- **Cell Phones:** These are smaller mobile Phones that have multiple channels or access to networks. Example: The General Systems Mobile (G.S.M) Phones, which is our individual phones for both commercial and personal usage.
- **Interactive Television:** This is for wider business coverage and discussion, via the audio-visual units (Example: The Pay TV or video conferencing, which is being used by bigger firms like; shell, mobile, and chevron, to mention but a few).
- **Electronic Publishing Machines:** These are large prints on paper, via machines. Example: Text Books, Newspaper and Magazines;
- **General Computer Networks:**. This is basically for the linking of two or more Computers together, via cables. Example: The Electronic Mails and so on.
- **Projector Machine:** This is an electronic device that is capable of making us view what is inside a Computer for presentation purposes on a while Clothe, Board or Larger Screens as the case may be.
- **Education Software:** This is basically geared-towards boosting the educational sectors. Example: the education online, such as; teaching and learning processes.

The era of 21st century is often regarded as an era of technology. Technology, today, plays a very important role in our life. It is seen as a basis of growth of an economy. An economy which is poor in technology can never grow in today's scenario. This is because technology makes our work much easier and less time consuming. The impact of technology can be felt in every possible field one such field is Education. Modern technology in education according to the latest insights as to how exactly modern students of today prefer to use technology and how does their learning get an impact if they use technology, it was revealed that the use of modern equipment technology and tools, the learning and interactivity of students increases. They also

find it much more interactive, as well as full of interesting areas, when aided by technology. The transfer of knowledge becomes very easy and convenient, as well as effective. What this means is, that our minds now tend to work faster when assisted with the use of modern technology, be it any part of life, here we talk about education. The reliance and dependence of such an innovation, that simply makes life an easy, smooth journey is completely unavoidable these days even in schools, universities and colleges. Students today can make use of technology in the following ways: Internet connection and round the clock connectivity.

The internet has grown in importance by many folds, over the process of decade. Its importance in the education world can now never be undermined. Despite the chances of fraud and drawbacks, the use of the internet is like a blessing for students. Today, the internet is something that is present in almost everything we use. From television to gaming consoles, and our phones, the internet is literally everywhere. The use of the internet allows students to find amazing convenience, they can find various kind of help, tutorials and other kinds of assisting material, which could be used to academically improve and enhance their learning. Using projectors and visuals Visual images always have a strong appeal compared to words. Using projectors and visuals to aid in learning is another form of great technological use. Top institutions around the world, now rely on the use of amazing PowerPoint presentations and projections in order to keep the learning interactive and interesting.

Technological use such as projectors within the schools and colleges can take the interaction and interest levels right up and also improve motivation. Students like to see appealing visuals and something that entices them to think rather than just reading words. The learning part also becomes pretty efficient when it comes to technology. The penetration of ICT has resulted in round the clock connectivity with students and different forums that are available for different kinds of assignments or help. As the power of digital increases, there are and there will be more applications that will assist students in development and learning. Online degrees with the use of technology now have become a very common phenomenon. People wish to take up online courses for their learning and certifications. Top institutions offer amazing online programs with the use of various applications and the internet. This is a concept that will continue to rise as it gets more support and awareness. The online degree scenario around the world is more famous among students who work and look for flexible studying programs.

IMPORTANCE OF TECHNOLOGY IN EDUCATION

The role of technology in the field of education is four-fold: it is included as a part of the curriculum, as an instructional delivery system, as a means of aiding instructions and also as a tool to enhance the entire learning process. Thanks to technology; education has gone from passive and reactive to interactive and aggressive. Education is essential in corporate and academic settings. In the former, education or training is used to help workers do things differently than they did before. In the latter; education is geared towards creating curiosity in the minds of students. In either case, the use of technology can help students understand and retain concepts better.

FACTORS AFFECTING TECHNOLOGY IN EDUCATION

Jung talks about the enormous challenge teachers are facing in our society due to the rapid expansion of knowledge. The modern technologies are demanding that teachers learn how to use

these technologies in their teaching. Hence these new technologies increase the teachers' training needs. Shah (2011) asserted that teacher's attitudes toward computers are a key factor in the successful implementation of ICT in education. They pointed out that teachers do not always have positive attitudes towards computers and their poor attitudes may lead to a failure of the computer- based projects. Also the most commonly cited barriers are:

- lack of time;
- lack of access;
- lack of resources;
- lack of expertise and
- lack of support.

Another barrier given by Agabi and Uche (2006), Aja (2013), Azunda (2002) and Chizmar and Williams (2001) is reliability. Reliability included hardware failures, incompatible software between home and school, poor or slow internet connectivity and out of date software which are available mostly at school while the students/educators are having more up-to-date software at home.

Impact of ICT on Education

In educational context, ICT has the potential to increase access to education and improve its relevance and quality. Tinio (2002) asserted that ICT has a tremendous impact on education in terms of acquisition and absorption of knowledge to both teachers and students through the promotion of: Active learning: ICT tools help for the calculation and analysis of information obtained for examination and also students' performance report are all being computerized and made easily available for inquiry. In contrast to memorization-based or rote learning, ICT promotes learner engagement as learners choose what to learn at their own pace and work on real life situations' problems. Some of the impacts of ICT on educational development are:

- **Collaborative and Cooperative Learning:** ICT encourages interaction and cooperation among students, teachers regardless of distance which is between them. It also provides students the chance to work with people from different cultures and working together in groups, hence help students to enhance their communicative skills as well as their global awareness. Researchers have found that typically the use of ICT leads to more cooperation among learners within and beyond school and there exists a more interactive relationship between students and teachers (Roschelle et al., 2000). Collaboration is a philosophy of interaction and personal lifestyle where individuals are responsible for their actions, including learning and respect the abilities and contributions of their peers (Leising, 2013).
- **Creative Learning:** ICT promotes the manipulation of existing information and to create one's own knowledge to produce a tangible product or a given instructional purpose.
- **Integrative Learning:** ICT promotes an integrative approach to teaching and learning, by eliminating the synthetic separation between theory and practice unlike in the traditional classroom where emphasis encloses just a particular aspect.

- **Evaluative Learning:** Use of ICT for learning is student-centered and provides useful feedback through various interactive features. ICT allow students to discover and learn through new ways of teaching and learning which are sustained by constructivist theories of learning rather than students do memorization and rote learning.
- **Enhanced Teaching and Learning:** Technological developments like digital cameras, projectors, mind training software, computers, Power point presentations, 3D visualization tools; all these have become great sources for teachers to help students grasp a concept easily. It has to be understood that visual explanation of concepts makes learning fun and enjoyable for students. They are able to participate more in the classroom and even teachers get a chance to make their classes more interactive and interesting.
- **Globalization:** When school in different parts of the state, students can “meet” their counterparts through video conferencing without leaving the classroom.
- Some sites, such as www.glovico.com are used to help students learn foreign languages online by pairing a group of students with a teacher from another country.
- **No Geographical Limitations:** With the introduction of online degree programs there is hardly any need of being present physically in the classroom. Even several foreign universities have started online degree courses that student can join. Distance learning and online education have become very important part of the education system now a day.

Negative Impact

- **Declining Writing Skills:** Due to the excessive usage of online chatting and shortcuts, the writing skills of today’s young generation have declined quite tremendously. These days, children are relying more and more on digital communication that they have totally forgot about improving their writing skills. They do not know the spelling of different words, how to use grammar properly or how to do cursive writing.
- **Increasing Incidents of Cheating:** Technological developments like graphical calculators, high tech watches, mini cameras and similar equipment have become great sources to cheat in exams. It is easier for students to write formulas and notes on graphing calculators, with least chances of being caught.
- **Lack of Focus:** SMS or text messaging has become a favorite pastime of many students. Students are seen playing with their cell phone, iPhones day and night or driving and very often even between lectures. Being ever-connected to the online world has resulted in lack of focus and concentration in academics and to some extent, even in sports and extracurricular activities.

However, ICT makes students more excited to learn and help students with busy schedules the freedom to work at home on their own time (Aduwa-Ogiegbaen & Iyamu, 2005). ICT train students to learn new technology skills they can use later in the work place and decreases paper and photocopying costs, promoting concept of “green revolution” (Nwamara, 2018). Nonetheless, many experts and experienced scholars state that due to the use of technology in education, student’s imagination is affected, their thinking ability is reduced. Sometime it is also time-consuming from teacher’s point of view. It is costly to install such technology. There can be health issues too when used over limit. Some students cannot afford modern computer

technologies. Technology has a positive impact on education and at the same time may also pose negative effects (Eseyin et al., 2013). Teachers and students should take advantage of this in the good light and eliminate the drawbacks which are pulling back many of students as well as schools from achieving excellence. It is thus time for every country to introduce a more technologically equipped education sector for the future development of its educational systems (Babajide & Bolaji, 2003).

Available Modern Technology Devices for Effective Teaching in Secondary Schools

The development of microcomputers, optical disc, the establishment of telecommunication network, television, internet, etc. has assisted in broadening people's knowledge and facilitating effective communication. Ugwu and Oboegbulem (2011) stated that ICT in education encompasses a great range of rapidly evolving technologies such as desktops, notebooks, digital camera, local area network (LAN), the internet and the World Wide Web (WWW), CD Rom and DVDs that aid applications spread sheets, tutorials, simulations, electronic mails, digital libraries, Computer mediated, conferencing, video conferencing and virtual reality. In effect, ICT has reduced the barriers that characterized relationship in terms of space, time, and learning activities. ICT tools for teaching and learning include Computer, Internet, PowerPoint, Television, Overhead Projectors, Camera, Radio Cassette, Video tape, Audio Cassette Audio CD, World Wide Web (WWW), Telephone, etc.

Effective according to Homby (2004) is a condition of producing result that is desired or intended. In other words, it is producing a successful result. Teaching and learning produce result that is wanted or intended when the learner is able to exhibit behavior that reflect the objectives of the instructional programme. It is when this happens that we can say that teaching and learning is effective. This can only take place where the learning environment is supportive. ICT has the potentials to transform and enrich the classroom environment to achieve qualitative education, meaningful and lifelong learning and all levels of education especially secondary school which is a base and criteria for higher level education.

Therefore, introducing ICT to teaching and learning will give the students the opportunities to access information of their interest and interact with experts in other parts of the world. This will help to further develop their understanding, knowledge as well as make them gain new information. This is in line with Ugwu et al. (2011) who held that effective use of ICTs in school guarantees more access to information and experience in the era of globalization. Badmus (2004) stated that introduction of ICT in the school setting has a great impact in contributing to the achievement of the educational objectives, aims and goals as well as improving teaching and learning.

The Extent of the Utilization of Modern Technologies for Teaching Effectiveness in Secondary Schools

It is very important to recognize the role of the teacher for proper and effective use of modern technologies in the teaching and learning process, so long as the teacher owe the sole responsibility of Implementing curriculum at the classroom level, utmost concern must be given to the teachers ability, skill, knowledge, resourcefulness and competence as to instill the right attitude, knowledge and skills to the students. Desire (2010) studied internet utilization in the management of higher institutions in Rivets State. In his study, it was clearly shown that Internet

is not fully utilized and internet connectivity to services center is not yet complete while problems do exist. It is therefore not surprising that the capacity for the application of ICT in teaching and overall administrative processes has become one of the internationally recognized aspects to determine not only the quality of higher education in the state but also its development sustainability.

It is for this reason that teaching and research have been acclaimed as the control function of the universities of which secondary schools are not exception. It is with regards to this quality prospect that Omokosi (2009) further stated that ICT facilitates teaching and learning, enhances global development partners in the provision of trainings and distribution of learning materials. He stressed that school administrators should adopt the use of ICT in the teaching and learning to equip both teachers and students with scientific knowledge and skills required for workplace.

Ighofivwioni (2014) stated that school administrators need to use internet to upgrade the school curriculum and search for current educational policies and practices, teachers need to turn to the internet source for current and relevant information to support their lessons and improve their pedagogy and students also need to make use of the internet to discover new concepts, learn on their own and improve upon whatever they have been taught by their teachers.

METHODOLOGY

The research design adopted for this study was descriptive survey design. The descriptive survey was suitable for this study because the study elicited information on exploring the use of modern technology for teaching effectiveness in secondary schools in Obio-Akpor LGA of Rivers State, Nigeria. The population of this study was comprised of all the teachers in public senior and junior secondary schools in Obio Akpor LGA of Rivers State

Sample of one hundred and seventy-eight (178) respondents was drawn from the population. Simple random sampling technique was used to select five secondary schools in Obio Akpor Local Government Areas for the study. The instrument that was used in this study for data collection was a self-structured questionnaire titled “Exploring the use of modern technology for teaching effectiveness questionnaire” (EUMTTEQ). The instrument was divided into two sections. Section A was for collection of demographic data while section B was a list of 15 item statement generated response designed to measure the research questions. The respondents were allowed to tick inside the box for the option that best described them.

The instrument for the study tagged ‘Exploring the Use of Modern Technology For Teaching Effectiveness Questionnaire (EUMTTEQ)’ was validated by three experts in the Department of Educational Management, Ignatius Ajuru University of Education, Nigeria. The validation was done to ascertain whether the instrument could measure the content of the item appropriately or not and the suggestions made were effected.

The reliability of the instrument was carried out through the test-retest method to measure the stability of the instrument. Twenty (20) copies of the instrument were administered to respondents who were not part of the study. After two weeks interval, the same instrument was retested on the same people. The initial and retested scores of the samples were obtained and subjected to Pearson Product Moment Correlation to obtain an average reliability coefficient of .81 needed for the study.

The instrument was administered in person by the researcher with the assistance of 2 research assistants. The completed copies of the questionnaires were collected in person by the researchers within two weeks. A total of one hundred and seventy eight (178) copies of

questionnaire were administered and retrieved. The research questions were analyzed using simple percentage.

RESULTS

Research Question 1: What are the modern technologies available for teaching effectiveness in secondary schools in Obio-Akpor LGA in Rivers state?

Table 1: Percentage scores representation of modern technologies available for teaching effectiveness in secondary schools in Obio-Akpor LGA of Rivers State

S/N	ITEM	N	Required No.	Available No.	% of available	Shortfall	% Shortfall	Remark
1	Laptop	178	20	4	20%	16	80	S.F
2	Desktop	178	12	1	8%	11	92	S.F
3	Digital Projector	178	12	-		12	100	S.F
4	Media Board	178	12	-		12	100	S.F
5	Scanning Machine	178	5	-		5	100	S.F
6	Printing Machine	178	5	-		5	100	S.F
7	Intercom Facilities	178	5	-		5	100	S.F
8	Internet Facilities	178	5	-		5	100	S.F

KEY: A= Available; NA= Not Available; S.F = Short fall.

In Table 1 eight facility items were assessed to determine ICT availability for teaching effectiveness in secondary schools in Obio-Akpor L.G.A in Rivers state. The result of the data shows that the eight items with their available scores as: laptop 4(20%), desktop 1(8%), digital projector 0(0%), media board 0 (0%), scanning machine 0(0%), printing machines 0(0%), intercom. facilities 0(0%), and internet facilities 0(0%), while the percentage scores of not available are: laptop 16 (80%), Desktop 11 (92%), Digital projector 12(100%), Media board 12 (100%), scanning machine 5(100%), Printing machines 5(100%), Intercom Facilities 5(100%), and Internet facilities 5(100%). The result revealed that the percentage of available modern technologies for teaching effectiveness in secondary schools in Obio Akpor L.G.A in Rivers state were 28% while the percentage of not available were 72%.

Research Question 2: To what extent are modern technologies used for teaching effectiveness in secondary schools in Obio Akpor LGA of Rivers State?

Table 2: Percentage scores representation of modern technologies used for teaching effectiveness in secondary schools in Obio-Akpor LGA of Rivers State

S/N	ITEM	RESPONDENTS AND PERCENTAGES									
		VHE	%	HE	%	LE	%	VLE	%	Total Respondents	Total %
9	Laptop	2	1	9	5	17	10	150	84	178	100
10	Desktop	4	2	23	13	30	17	121	68	178	100
11	Digital Projector	-	-	-	-	-	-	178	100	178	100
12	Media Board	-	-	-	-	-	-	178	100	178	100
13	Scanning Machine	-	-	-	-	-	-	178	100	178	100

14	Printing Machine	-	-	-	-	-	-	178	100	178	100
15	Internet Facilities	-	-	-	-	-	-	178	100	178	100

In table 2, seven facility items were assessed to determine their extent of utilization for teaching effectiveness in secondary schools in Obio Akpor L.G.A in Rivers state. The result of the data shows the seven items with their extent of utilization scores as: laptop 2(1%), desktop 4(2%), while digital projector, media board, scanning machine, printing machines, and internet facilities were 100% not utilized. By the overall score, the result reveals that the percentage of modern technologies not utilized for teaching effectiveness in secondary schools in Obio Akpor L.G.A in Rivers State were very high.

DISCUSSION OF FINDINGS

Modern technology facilities available for teaching effectiveness in secondary schools in Obio Akpor L.G.A of Rivers State

The overall analysis of this study revealed that only Lap tops and desk tops were modern technologies facilities found to be available for teaching effectiveness in secondary schools in Obio Akpor L.G.A of Rivers State. Their availability may be because teachers and management need them facilities for producing test and exam papers. These modern technology facilities can also serve as tools for storing and retrieving educational information about students' grades, test scores or results. In fact, adequate availability of modern technologies for teaching effectiveness will improve interaction and efficiency in secondary school affairs. Modern technology facilities like, digital project, media board, scanning machine, printing machines, intercom, and internet facilities were not available in the secondary schools. This indicates that modern facilities are not adequately available for teaching effectiveness in secondary schools in Obio Akpor L.G.A of Rivers State.

The extent to which modern technologies are utilized for teaching effectiveness in secondary schools in Obio-Akpor LGA of Rivers State

The study was able to reveal that Lap-tops, and desktop computers, were utilized although not to a very high extent. But digital projector, scanning machines, media board, printing machines, and internet facilities were modern technologies that were not utilized for teaching effectiveness in secondary schools in Obio Akpor L.G.A of Rivers State. Utilization is a function of availability and methodology. However, this supports the findings of Babajide and Bolaji (2006) that revealed that ICT facilities were lacking in schools and teachers and students were to a little extent exposed to ICT.

CONCLUSION

The use of modern technologies has imposed changes on information utilization to the extent that teachers would hurriedly get acquainted with its usage. Modern technologies reduce administrative cost. The use of the internet could enhance teaching effectiveness and reduce failure rate because the same information on the internet can be sent to all teachers and students without having to do it individually. The implication is that those unwilling to adopt modern

technology usage as working tools will render the efforts of the school and teacher useless and making record keeping a cumbersome and burdensome activity. This will to a great extent impact negatively on teaching effectiveness as cases of information retrieval and sourcing, storing of files and records will be negatively affected. The study concluded that these modern technologies are not available and utilized. Furthermore, for adequate provision and utilization of modern technology facilities to be visible, there must be adequate funding of secondary schools in that direction and also, the institutions must ensure that teachers are properly trained in the usage of modern technologies facilities for teaching effectiveness in secondary schools in Obio/Akpor local Government Area of Rivers State.

Recommendations

Based on the findings of the study, the researcher would make the following recommendations:

- Periodic training and re-training should be organized for all categories of teachers in secondary schools that cannot access modern technologies facilities to increase their level of application.
- The government should make provision of funds for the procurement, maintenance and equipping as well as providing regular or an alternative power supply in all secondary schools in Obio/Akpor L.G.A in Rivers State as this will encourage teachers in teaching and updating records when the need arises.
- Adequate supply and provision of these modern technologies should be made in all secondary schools in Obio Akpor L.G.A of Rivers State

REFERENCES

- Aduwa-Ogiegbaen, S. E., & Iyamu, E. O. S. (2005). Using information and communication technology in secondary schools in Nigeria: Problems and prospects. *Educational Technology & Society Journal*, 8(1), 104-112.
- Agabi, O.G., & Uche, C.M (2006). Level of internet usage among staff and students of the University of Port Harcourt.
- Aja, S. N. (2013). Information and communication technology opportunities and challenges in the Nigerian education system. *Journal of Qualitative Education*. 9(3), 2-4.
- Azunda, O. (2002). *ICT availability and secondary education in Rivers State*. Unpublished M.Ed. Thesis, Faculty of Education, University of Ibadan.
- Badmus, A. M. (2004). Computer instruction: An approach that expedites the system of education. *Nigeria Journals of. Computer Literacy*.
- Babajide, V. F. T., & Bolaji, O. A. (2003). Perception of lectures and service teachers towards the use of communication media in teaching pure and applied science related discipline. 44 Annual STAN conference proceedings pp. 33-36.
- Desire, E. W. (2010). *Globalization and higher education in Rivers and Bayelsa State* Unpublished M.Ed Thesis, University of Port Harcourt.
- Eseyin, E. O. Leneg, B., & Ubani-Sunday, O. G. (2013). The role of ICT in the administrative of secondary education in Rivers State: *African Social and Policy Journal*, 3(5), 115-125.
- Federal Republic of Nigeria (2014). *National Policy on education*. NERDC Press.

- Finger, G., & Trinidad, S. (2002). ICTs for learning: An overview of systemic initiatives in the Australian states and territories. *Australian Educational Computing*, 17(2), 3-14.
- Ghavifekr, S., & Rosdy, W. A. W. (2015). Teaching and learning with technology: Effectiveness of ICT integration in schools. *International Journal of Research in Education and Science*, 1(2), 175-191.
- Ighofivwioni, P. P (2014). *Application of information and communication technology (ICT) in the administration of secondary schools in Delta State*. Unpublished M.Ed. thesis, University of Port Harcourt
- Leising, J. (2013). The new script for teaching handwriting is no script at all. *wsj.com* <http://online.wsj.com/article/SB10001424127887323644904578272151551627948.html?KEYWORDS=handwriting>.
- Nwamara, E. N. (2018). Availability and utilization of information communication in the management of tertiary institutions in Rivers State. Unpublished master's thesis, Department of Educational Management. Ignatius Ajuru University of Education Port Harcourt.
- Ogunsola, L. A. (2005). *Information and communication technologies and the effects of globalization: Twenty-first Century Digital slavery for developing countries*. Myth or Reality? <http://southerlibrarian.icaap.org>.
- Okorie, N. C., Agabi, O. G., & Uche, C. M. (2006). *Application of information communication technology in the management of public and private universities*. Text papers presented at the 29th Annual Conference of the Nigeria Association of Educational Administration and Planning, University of Calabar: 10th October – 13th October, 2005.
- Olaniyan, D. A., & Olabanji, E. O. (2006). Globalization and Nigeria educational system: Opportunities and challenges. *International Journal of African-American Studies*, 5(2), 10-20.
- Olorunsola, E. O. (2007). *Information communication technology. A tool for effective management in Nigerian Universities, Education. Focosi*, 1, 80-87.
- Omokosi, J. (2009). *Computer-based education in secondary schools: a study of selected secondary schools in Warri*. Final year degree project, University of Port Harcourt.
- Opera, S., & Ituan, I. (2009). Nigeria's ICT sector: Growth, gain and challenges. Retrieved from <http://www.wes.org>.
- Roschelle, J., Pea, R., Hoadley, C., Gordin, D., & Means, B. (2000). *Future of children*, 10(2), 76-101.
- Shah (2011, July 16) Why does writing make us smart ?*huffingpost.com*. http://www.huffingtonpost.com/2011/07/16/why-does-writing-make-us-_n_900638.html.
- Theresa, O. B. (2010). The use of information and communication technology for enhancing management of tertiary institutions in Rivers State. M.Ed Thesis, University of Port Harcourt.
- Uche, C. M. (2006). Level of internet usage among staff and students of the university of Port Harcourt decision-making. Unpublished Seminar Paper presented at Port Harcourt City Local Government Area.
- Uchenna, N. J. (2005). Management information system as technique in the administration of secondary schools in Abia State. M.Ed Thesis, University of Port Harcourt.
- Ufondu, G. O. (2007). *Nigeria literary educators and their technological needs in a digital age. Education Focus*, 1(1), 22-30.

- Ugwu, R. N., & Obegbulem, A.I. (2011). Information and communication technology (ICT) capacity building for staff personnel in post primary schools for effective school administration. *International. Journal for Educational Research*, 11(1), 190-201.
- Ukonu, M. (2005). *Fundamentals of information technology*. Benin City: Algate Publishers.
- UNESCO (2005). *Quantitative Research methods in education planning*. France IIEP Prime Shop.
- Wangwe, O. C. (2007). *Effect of information and communication technology preference on labour productivity*. Ilorin: University Press.