

ICT in Education: Assessing the Level of Teachers Computer Literacy, Competency, Availability and Utilization of Computers in Public Secondary Schools in the Akpor District of Obio/Akpor L. G. A. of Rivers State, Nigeria

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Abstract—Contemporary teachers should ensure that they are technologically skilled to embrace and manipulate the emerging Information and Communication Technologies tools, especially computers to enhance teaching and learning processes, consequently, this paper addresses the issue of teachers' computer literacy level in public secondary schools in the Akpor district of Rivers State, Nigeria. The authors' further assessed the availability of computers, computer laboratories, and the utilization of computers in the teaching-learning process. Also considered are the challenges affecting its effective usage in the aforementioned public schools. As a follow-up, the researchers proffered major solutions and as well made appropriate recommendations to stakeholders in the education sector to ameliorate any envisaged constraints. This study employed a descriptive survey method, which involved a questionnaire, interviews, and observations to assess the teachers' computer literacy/competency level. The purposive sampling technique was used because all the teachers in the 8 public schools were used for the study. 491 teachers served as respondents for the study. The researchers used the four Likert-type scale questionnaire, which ranged from "Strongly agree" (SA), "Agree" (A), "Disagree" (D), and "Strongly Disagree" (SD). Furthermore, a 12-item Likert-type scale of close-ended questions was used to collect data because they are quick to compile, straightforward to code, and do not discriminate unduly on the basis of how articulate the respondents are. A statistical percentile was used for data analysis, and the results in tables 1-7 revealed as follows: 1. 410(83.5%) of the teachers are computer illiterate. 2. 483(98.4%) of teachers disagreed that there are enough computers in public secondary schools in the district. 3. 466(94.9%) against 25(5.1%) respondents disagreed that computers are accessible in the public secondary schools in the district. 4. 402 (81.9%) of respondents cannot effectively make use of computers for instructional purposes. 5. 491(100%) of the respondents awful revealed there is no single laboratory in the aforesaid secondary schools in the district. 6. Among other numerous challenges as displayed in table 6 below shows that item 1 shows that 491(100%) of respondents reported that there is no constant electricity supply to power the computer; while table only 7 revealed that only 12(2.4%) out of 479(97.6%) teachers in the Akpor district have professional computer certificates. Nevertheless, suggestions were made that the teachers should be sent for computer training and retraining via in-service computer training, organizing seminars, conferences, workshops, and outright study leaves, among others for the teachers to enhance their computer literacy/competency skills in the aforesaid public secondary schools.

Keywords— Computer literacy, Public secondary school, Technology integration, Teachers Digital competence, and Computer competency.

I. INTRODUCTION & REVIEW OF RELATED LITERATURE

In our digitized era, the use of computers to perform a job is no more a new phenomenon. As a result, many of us today are witnesses to seeing individuals being assisted with computers in completing some tasks, especially cashiers calculating and balancing bank transactions, and sales in stores, restaurants, and hotels; others include analyzing car engine settings, online learning programmes, etcetera. In the education sector, teachers are assisted with computers to perform their functions in schools.

As Yusri (2019) puts it, the education sector at all times develops in response to the demands of society. Victor, Lakshmithai, Toppo, & Tiwari (2020) declared that "Education makes human life more civilized and complete; education includes all the values which will continue till the end of one's life; it empowers us to live in the society with an everyday changing environment; it also helps to enhance our skills and develop our personality". In the same manner, Derrington (2018) affirmed that a good education system updates itself with the day-to-day changes in the world. This, the scholar established that it is possible only if the teachers, who are imparting knowledge remain updated according to the changes in the field of education. The teachers have a professional responsibility to transform themselves by developing their competencies.

Consequently, in the present world, we live in constant change (Osadebe & Ojukonsin, 2018). We are in a digital age, and every person has to think, act, and behave digitally to reflect the present realities. Yusri (2019) stressed that the education system develops from time to time following the demands that occur in society. This is in concord with Derrington (2018). Today's learners are not like yesterday's because of a changing world characterized by technological advancements and innovations. Therefore, today's learners need to be equipped with the necessary technological skills, competencies, and experiences required to enable them

either established and maintained by the department, or issued a charter by the board of education, following the law (Zinth, 2005). A public school is one that receives funding from the government, typically through taxes. Most times, depending on the state concerned, it is free for everyone to go to a primary or secondary public school (<https://www.vocabulary.com/dictionary/public%20school>). A public school could also mean a school operated by publicly elected or appointed school officials in which the program and activities are under the control of these officials and are supported by public funds (Zinth, 2005).

Teachers' Computer Competency: As put forward by Victor et al (2020), this refers to the ability to use technology in the teaching-learning process; the main competencies include communication through digital tools, learning online, and application of technology in instruction. The scholars stressed that the teachers need to develop their communication skills and knowledge to use the technical equipment. However, they stated that fundamental skills are sending and receiving e-mail messages, creating documents and managing electronic files, accessing online resources, preparing multimedia presentations, and maintaining a spreadsheet for analyzing the students' scores. They further affirmed that the professional growth of a teacher depends upon their technological competencies.

ICT: This is an abbreviation for Information and Communication Technology (ICT). ICT has been conceptualized by According to Osadebe & Ojukonsin (2018), "an umbrella term that encompasses any communication device or application encompassing radio, television, cell phones, video conferencing, distance learning, computer hardware and software, internet, satellite systems, and so on as well as the various services and applications associated with them." It is the application of scientific tools to deliver information more quickly and effectively. It entails using computer software, additional communication services, and the documentation that goes along with it.

Computer literacy: The most basic level of computer literacy is knowing how to use computers for personal or professional purposes; it also includes knowing how to utilize computers effectively. It requires the basic knowledge of skills that are needed to access and manipulate digitally encoded information (<https://www.encyclopedia.com/media/encyclopedias-almanacs-transcripts-and-maps/computer-literacy>). The website states that computer literacy is also a component of information literacy and a general term that encompasses an understanding of the social, political, and economic ramifications of mass computer use.

Finally, computer literacy can as well be referred to as one element of information literacy, which includes a grasp of the economic, social, and political consequences of widespread computer usage. A computer-literate person should be able to use computers to perform basic tasks, such as writing letters or reports, calculating and comparing numbers or objects, or communicating via connections that support e-mail or (perhaps) a web page, as personal, business, or educational circumstances require. It means using computers to do certain jobs, such as, storing, accessing, and repetitively and rapidly

processing massive quantities of data for human interpretation, which adds value that turns data into information; this definition may also include knowing how to connect to storehouses of information to satisfy curiosity or be entertained

(<https://www.encyclopedia.com/media/encyclopedias-almanacs-transcripts-and-maps/computer-literacy>).

Teachers' Digital competence: According to Sanders & George (2017), teachers' digital competency implies that in addition to being able to use the technology themselves, teachers are required to meta-reflect on technology use concerning pedagogy and what it can mean for students' learning in specific contexts. Similarly, Hatlevik (2017), states that teachers must be able to use technology in their teaching so that they can help students to manage the digital competence aims in the curriculum. Furthermore, Hatlevik (2017) considers research in constructing the hypothesis those teachers' beliefs and confidence in using digital technologies correlate with their capability to teach and support students' digital competence.

Digital Literacy: Sometimes, scholars use digital literacy and digital competency interchangeably. However, Hall et al., (2014) avowed that digital literacy involves "skills, attitudes, and knowledge required supporting learning in a digitally-rich world" (Hall et al., 2014). Similarly, it has been similarly conceptualized by Tomczyk (2019) as including teachers' ability to engage ICT in teaching a given subject. It has also been defined by Both Hall et al. (2014) and Tomczyk (2019) as the skills to use different devices, applications, and websites to change classroom practice, both pedagogically and socially. It also includes the ability to think critically about why, how, and when technology supplements learning and teaching (Hall et al., 2014); added to the above is the safe use of electronic media (Tomczyk, 2019), which implies awareness of the existing threats on the internet, such as cyberbullying and piracy (Ewa Skantz-Åberg, Annika Lantz-Andersson, Mona Lundin & Pia Williams (2022).

Need for Computer Literacy/Competency for Teachers in 21st Century Classroom

Yusri (2019) presently observed that there are still many teachers who do not know how to operate computers, especially using Microsoft Office Word applications, Microsoft Office Excel, and Microsoft Office PowerPoint. He further stressed that some older teachers are afraid to try to operate computers (technology stutter). Recent studies revealed that the more digital literate the teachers are, the more they will employ these skills in the classroom, which will in turn foster a strong sense of digital citizenship in our students (<https://rossieronline.usc.edu/blog/teacher-digital-literacy/>). In the same manner, Tomte, Fosslund, Aamodt, and Degn (2019) advised that in our present society, it is important to make, create, and update the abilities of individuals in information-based professions.

Based on the above premise, Bhebhe and Maphosa (2016) advised that it is essential for teachers to be computer literate in this ICT-based era because it boosts teachers' confidence as educators, and their confidence in using electronic systems,

and consequently enhances their professional development. Computer literacy involves the capacity to utilize PCs and relevant innovation productively; it also incorporates the understanding of programming language and how PCs work (Tomte, Fosslund, Aamodt, & Degn, 2019). The knowledge of computers supports teachers' job effectiveness and performance, record keeping, school discipline, and supports the learners' academic performance. It has also been revealed that computer literate teachers perform their tasks better than non-computer literate teachers in the schools as they make making use of computers during their teaching activities (Bhebhe and Maphosa, 2016).

Given the above, the Federal Government of Nigeria, having recognized the importance of Information and Communication Technologies (ICTs) in modern society, and the level of ICTs application in secondary schools, and to actualize this objective, incorporated ICTs into the National Policy on Education (Federal Republic of Nigeria, 2004) to actualize this set goal.

Consequently, there is a need for teachers to embrace computer literacy and competency on the ground that the importance of computer applications is virtually present in all fields of human endeavour, such as engineering, medicine, education, banking, business, name it (Osadebe & Ojukonsin (2018). Despite the teachers, there is a general emphasis on being computer literate. Teachers need to be computer literate to teach students the rudiments of computers in both primary and secondary schools, in fact, even in tertiary institutions. This becomes relevant because the Nigerian government has introduced online examinations at both secondary and tertiary institutions. For instance, the Nigerian government has in a few years now commenced the implementation of computer-based examination/ assessment in the Joint Admission and Matriculation Board (JAMB).

Therefore, Osadebe & Ojukonsin (2018) have argued that effective use of ICT in the classroom can aid in the development of computer-specific as well as more general abilities that will benefit students in their future academic and professional endeavors. The scholars further advanced that when students are exposed to these computer skills, they will have the advantage of being able to use them to access, generate, compile, distribute and exchange information effectively. There is a great challenge facing teachers in the Nigerian education system. This is because the usage of ICT in facilitating teacher education is still very minimal in Nigeria as UNESCO (2000) reported that less than 10% of the teachers in Nigerian primary and secondary schools are computer literate. This is a great challenge facing teachers' effectiveness in using computers in teaching and learning processes in Nigerian schools. When the teachers are not skilled and competent in the use of computers, what happens to the students being taught? This is one of the reasons why teachers need immediate computer literacy or competence in ICT facilities, particularly computers.

Need for Teachers' Computer Literacy/Competency in Teaching-Learning Process

Pelgrum (2001) and Ogiegbaen (2005) informed us that various studies found that teachers lack computer skills, which act as hurdles in their computer competency. Though, Mir (2013) stressed that some of the study's results revealed that male teachers have more computer competency than female teachers. Then, if Women and Information Technology (2016) emphasized that using computers in education increases learners' interest in computers, then, why do we waste our time informing teachers to be computer literate, knowing that it is their responsibility to impart computer literacy to the children/learners? Students cannot overlook the relevance of computers in their learning process. In the educational arena, as revealed by Bhebhe and Maphosa (2016), computers are used for many applications, such as data capturing, paper writing, and searching for information on the Internet.

It is on this note that Bhebhe and Maphosa (2016) expressed that the world is undergoing rapid changes in the fields of (ICT) and the role of the 21st-century teachers have had to adapt accordingly to fit and exist within the said changes in the classroom. Osuji (2010) also argued that almost all the areas of human life in the present dispensation require computer knowledge, hence, mandatory for 21st-century teachers to be highly computer literate to assist learners to adequately fit well into modern society. In the same manner,

Additionally, Get Into Teaching (2016) noted the use of computers in education for kids as early as age five and suggested that teachers stay up to date on ICT advancements to meet the demands of students at such a young age. Bhalla (2014) states that his research supports knowledge in existing literature in which teachers lagged in the pedagogical competencies associated with the selection of computer tools and pedagogy, which integrate computers into the curriculum, which are appropriate to each student's learning objectives, and allows them to manage to learn. Hence, there is a need for teachers' computer literacy and competence to use technology effectively in the teaching-learning process of the present technological age.

Again, Bhalla (2014) also affirmed that several studies have been carried out globally in various industrialized and information-based countries that computer technology on its own shall never be able to substitute teachers, and teachers shall always remain the principal actors, who will facilitate and harness the true potential of computer technology in education. Therefore, computer skill has become an integral skill in every teacher's professional repertoire (Bhalla, 2014). Bhalla (2014) further advanced, that the more the teachers are skilled in technology, pedagogy, and integration of technology, the more would be the use of computers in the teaching-learning process.

Yusri (2019) has also outlined some benefits inherent in teachers' knowledge of computers, for instance, the knowledge of the Microsoft Office Word application program will enable a teacher to make reports correctly, and fill in student report book data. Additionally, the teacher can also make a report in the school by typing the reports of various activities, such as making a Class Action Research Report that is required to be carried out by a teacher. Again, the teacher's mastery of the MS Excel application program will make room for easy and

more processing of data. Further, the teachers can arrange and displays lots of data in tables and later calculate or process the data automatically, thereby making it very easy for teachers to process student grades and various other similar needs.

1. The mastery of MS PowerPoint software by teachers will make it very easy for their slide presentations, hence, display their teaching material in the broadcast version, where the teaching material will display sheet per sheet (Yusri, 2019). Therefore, presenting, explaining, or illustrating concrete examples will be easily conveyed to students during lessons. In this case, the teachers will no more bother carrying simple media to show concrete examples when teaching in class since the content could contain text, images, sounds, animations, and even videos, which will easily appeal to various senses. The possessions of the above computer application programs skills will enable the teachers to save time and energy, and will as well be able to make learning situations conducive, easy to understand, and make the class more enjoyable (Yusri, 2019).

Obstacles to Teachers' Computer Literacy/Competency Level

It has been reported that regardless of several programmes and significant efforts in various developing countries, the integration of computer technology in education is still experiencing some difficulties. Onu and Ezhim (2019), in one of their researches on the utilization of ICT facilities in North-central Nigeria, showed that ICT facilities are inadequate in the zone. It has further been noted that due to lack of sufficient research in this direction has constituted challenges for teachers' use of technology in the education process (Bhalla, 2014).

Son (2012), while summarizing the difficulties and obstacles of her research findings, revealed the following as the major obstacles. (i) lack of some relevant ICT knowledge and suitable application skills (ii) lack of related support (iii) lack of interest and confidence. The scholar, while advancing reasons for the difficulties, mentions among others - (i) No enough related courses available for teacher training (ii) Inadequate English language competence (iii) Rapid changes in information technology (iv) Insufficient staff and technical support (v) Limited access to teaching resources and relevant software (vi) Incomplete information technology resources in education (vii) Heavy workload

(viii) Imperfect evaluation of teachers' achievement (ix) Unskilled information technology operations (x) Difficult adjustment from psychology (xi) A lack of some relevant ICT knowledge and suitable (xii) Lack of related support (xiii) Lack of interest and confidence. The above-named have been ascribed as the major obstacles to the integration of technology by teachers in teaching and learning processes.

In the same manner, several scholars, such as Osadebe & Ojukonsin (2018), Laaria (2013), Manduku, Kosgey, & Sang (2012), Okunleye and Ogunleye (2015) in Osadebe & Ojukonsin (2018), Idowu and Esere (2013), UNIPROJECTS (2015), Mohammed and Yarinchi (2013), Osakwe (2012), Sabina (2012), etc. have also identified several constraints that are responsible for teachers computer literacy/competency.

Some of these include lack of confidence, lack of competence, lack of access to resources, poor implementation of ICT policies, thereby depriving learners and the school community of accessing the potential of ICT, and insufficient computers and peripheral devices. Lack of electricity supply or recurrent electricity interruption makes it difficult to use the computer and any other ICT facilities wherever available. This is because many schools, especially in developing countries, which Nigeria is among are yet to be electrified.

Overcoming Obstacles to Teachers' Computer Literacy and Competency Level

The educational potential of computers in educational institutions at present time cannot be over-emphasized as technology has been continuously explored by educationalists to improve the teaching-learning process. The challenges of using technology in the classroom cannot also be overstressed. Therefore, there is a need to continuously proffer solutions to the numerous challenges facing teachers' computer skills acquisition to improve the present situation in educational systems. Several suggestions have been put in place to overcome the challenges posed by technology incompetency among teachers/educators in recent times. Among these suggestions put forward for teachers' computer skills competence are:-

1. Victor et al (2020) advised that there is a need to provide regular orientation and training program for teachers to resolve their computer-related problems. Hence, in-service/study leaves should be provided for computer teachers to enhance their computer skills, especially to handle various learning software, antivirus, projectors, scanners, etc. (Victor et al, 2020).
2. Furthermore, lack of, or insufficient ICT training opportunities for teachers have been identified as one of the obstacles facing teachers' computer illiteracy, thereby making it very difficult for successful computer integration. On this note, ICT (Computer) facilities should be provided for teachers to have first-hand experience in computer skills. Government at all levels should provide study leave/in-service training for teachers to study computers. Seminars, workshops, and orientations should also be regularly provided for teachers to update their knowledge from time to time to meet the present realities of our time, especially with the revolution of increasingly sophisticated computer technology.
3. The expensive nature of some ICT facilities poses lots of challenges. Haruna (2005) affirmed that ICT facilities are expensive and unaffordable to many individuals. Similarly, Onyeadike (2009) points out that buying computers and online learning facilities is expensive and not all secondary schools can afford them. The high price of computers and other ICT facilities have made it impossible for most teachers to have personal computers for both instructional and administrative purposes. This assertion has been avowed by Adomi (2006). Therefore, the government should come to the aid of the teachers by making computers available for them to have practical experience, which they will transfer to the students.

4. One other reason that needs to be looked into is the issue of labeling teachers as “inherently nervous and/or resistant to technology integration (Rice, 2021). As a result of this assertion, the government should make it compulsory in teachers’ training schools to be part of the core courses to be undertaken before graduation.
5. Installation of electricity should be a must in all schools to enable teachers to use ICT facilities to improve their level of computer literacy and competency. This is in line with Yusri’s (2019) suggestion that teachers should master the basic capabilities of computer operation and controls the minimum of Microsoft Office Word application programs, Microsoft Office Excel, and Microsoft Office PowerPoint, to compete with times.
6. Remarkable attention should be placed on the provision of laboratory facilities to enable the practical skills of computer operation to achieve educational goals.
7. Government at all levels should appeal and liaise with private and organized bodies to provide enough computers to schools in the area to enable public secondary schools to race with time.

Theoretical Framework

This study is dependent on the diffusion of innovations. Diffusion of innovations is one of the oldest social science theories developed and popularized by an American communication theorist and sociologist, Everett M. Rogers in 1962. The theory tries to explain how, why and at what speed new ideas and technology spread. Medlin (2001) argues that the theory is best suited to study the adoption of technology (mainly computers) in colleges and educational institutions.

This theory has been categorized into five by which adopters fall based on their innovativeness. They are (i). Laggards (ii) Late majority (iii). Early majority (iv). Early adopters), and (v). Innovators. Rogers believes that when inventions are made in the outer world, teachers and learners in schools should be utilizing such inventions to enhance the teaching-learning process. Despite the categorization or the different levels and paces of adoption, and to effectively prepare learners for life after school (Women and Information Technology, 2016), teachers and learners should adopt evolving technologies, particularly computers to ensure that schools do not lag behind developments in the world. According to Bhebhe and Maphosa (2016), the spread of innovation theory can be attributed to teachers. “Computer literacy and access to and use of technology.

The purpose of the study

1. to assess the level of teachers’ computer literacy/competency in public secondary schools in the Akpor district of Rivers State.
2. to assess the level of utilization of computers in the teaching-learning process in public secondary schools in the Akpor district of Rivers State.
3. to assess the level of availability of computers in public secondary schools in the Akpor district of Rivers State.
4. to assess the level of challenges affecting the effective use of computers in public schools in public secondary schools

- in the Akpor district of Rivers State to make appropriate suggestions to improve the status quo.
5. to assess the level of laboratory provision in the teaching-learning process in public secondary schools in the Akpor district of Rivers State.
6. to assess the level availability of computers in public secondary schools in the Akpor district of Rivers State.
7. To assess the number of professionally trained computer teachers in public schools in public secondary schools in the Akpor district of Rivers State?

Research Questions

1. What is the level of teachers’ computer literacy/competency in public secondary schools in the Akpor district of Rivers State?
2. What is the level of availability of computers in public secondary schools in the Akpor district of Rivers State?
3. What is the level of accessibility of computers in public secondary schools in the the Akpor district of Rivers State?
4. What is the level of utilization of computers in the teaching-learning process in public secondary schools in the Akpor district of Rivers State?
5. What is the level of laboratory provision in the teaching-learning process in public secondary schools in the Akpor district of Rivers State?
6. What is the level of challenges affecting the effective use of computers in public schools in public secondary schools in the Akpor district of Rivers State?
7. What is the number of professionally trained computer teachers in public schools in public secondary schools in the Akpor District of Rivers State?

Significance of the Study

Based on the results of the study, the researchers will be able to make appropriate recommendations to educationists, school authorities, and other stakeholders in the education industry to improve on imparting more computer skills or knowledge to teachers by providing them with training opportunities. It will also motivate the school authorities to improve the technological status of the schools and the authorities are concerned to demand more funds to train the teachers and purchase more computers to meet the requirements of the present knowledge economy. It will enable the school authorities to look beyond the government fund and appeal to companies, wealthy private individuals, corporate bodies, government parastatals, and even non-governmental organizations to make cash or donations to get more funds for computers or provide computer training for teachers in public schools in public secondary schools in the Akpor district of Rivers State, Nigeria.

II. METHODOLOGY

This study employed the descriptive survey design research approach. Leedy and Ormrod (2001) supports this approach because it is the easiest and most appropriate to obtain and analyze information, and the results obtained from the sample could be used to make generalizations for the entire population, provided that the sample is truly

representative of the population. This method was as well supported by (Kpee, 2015) as it describes the state of affairs as it exists during the period. In the same vein, Tarus, Gichoya, and Muumbo (2015) adjudged this method to be appropriate as the study involved the collection of quantitative and qualitative data from a varied number of respondents via interviews and administering questionnaires to a sample of persons. The study was in reality carried out in 8 Public Secondary Schools in the Akpor District of Rivers State, Nigeria. The researchers used 491 teachers purposively from the 8 public secondary schools in the aforesaid district. The researchers collected and analyze the data based on the variables used for the study. The study examined the Teachers' Computer Competency Level in Public Secondary Schools in the Akpor District of Rivers State, Nigeria. 12-item Likert-type scale close-ended questions were used to collect data from 000 teachers from 8 schools because they are quick to compile and straightforward to code, and do not discriminate unduly based on how articulate the respondents are (Cohen, Manion and Morrison, 2008). As reported by Ary, Jacobs & Razavieh (2002), the scale is acclaimed to be one of the most widely used techniques to measure descriptive survey studies. A-12 item questionnaire titled: "ICT in Education: Assessing the Level of Teachers Computer Literacy, Competency, Availability and Utilization of Computers in Public Secondary Schools in the Akpor District of Obio/Akpor L. G. A. of Rivers State, Nigeria" was used as instrument for data collection from all the teachers in the 8 public schools. However, the questionnaire was structured by the researchers and was face validated by 4 experts. Four (4) of the experts were drawn from the field of Educational Psychology, Guidance and Counseling, and one (1) was drawn from the Department of Curriculum Studies and Educational Technology, University of Port Harcourt. The population used for the study comprised all the teachers in the 8 schools totaling 491. The research instrument was administered to the respondents' (teachers) and retrieved after 2 days. Additionally, the interview method was adopted by the researchers to augment any inconsistencies in the structured questionnaire. The information obtained from the interview was summarized and reported along with the results. The data obtained were analyzed, and statistical percentile was used to answer the research questions.

To achieve the above objectives, the under-listed research questions were raised and one hypothesis was tested.

Sample Size and Sampling Technique

The researchers employed a purposive sampling technique to select the teachers from the 8 public schools for the study. A total of 491 teachers from 8 public secondary schools in the Akpor District of Rivers State were used. The use of the purposive sampling method was to enable the researchers to include all the teachers in all 8 public secondary schools in the area.

Scope and Limitation

This study was limited to the Akpor district of Obi/Akpor Local Government of Rivers state, Nigeria. The research only

focused on secondary school teachers' computer literacy/competency.

Research Instruments

A 12-item structured questionnaire, made up of close-ended items for the respondents' was constructed and used as the research instrument for the collection of data for the study. The choice of close-ended questions became necessary because the method is quick to compile and straightforward to code, and as well does not discriminate unduly based on how articulate the respondents are Cohen, Manion and Morrison (2008). The 4 Likert-type scales ranging from "Strongly Agree" (SA), "Agree" (A), "Strongly Disagree" (SD), and "Disagree" (D) were used because Ary, Jacobs, and According to Razavieh (2002), one of the most popular methods for assessing descriptive survey studies is the aforementioned scale.

Administration of Data and Collection

The researchers obtained permission from the Principals' of the respective secondary schools used for the study for data collection. After granting the permission, the researcher-constructed questionnaire was administered in person to each of the teachers after explaining the purpose of the study and also assuring them of the confidentiality of the data/information given for the research work. The first part of the questionnaire comprised information on teachers' profiles, while the second part contained information on the computer competency of teachers. The teachers were asked to fill in the questionnaire, and after responding to the questionnaire, the researchers instantly collected them from the teachers for analysis.

Analyses of Data: The data gathered from the survey questionnaire was analyzed using statistical percentile. The teachers were asked to indicate their computer competence by encircling one number against each of the fifteen statements on a four-point scale. The final score of respondents on the scale was sum based on their ratings for all of the 12 items. The percentage of respondents in each of these categories was calculated and their computer competence was represented by percentages. The analyses are outlined below.

III. RESULTS, INTERPRETATIONS & DISCUSSION

To explore the level of computer competency of secondary school teachers in the Akpor District of Obio/Akpor L.G.A. of Rivers state, a set of 12-item questions were used to collect data from the teachers, and the under-listed tables displayed the results of various computer literacy/competency levels of secondary school teachers.

Question 1 examined the teachers' computer literacy/competency of teachers in public secondary schools in the Akpor District of Rivers state. A close observation of item 1 in table 1 above shows that 410(83.5%) of the teachers indicated that they are not computer illiterate and have no competency in computer operation. Only an insignificant few, 81(16.5%) of the teachers agreed that they can operate computers, which is not a piece of good news in contemporary times for the students. This is similar to the UNESCO (2000)

report that less than 10% of the teachers in Nigerian primary and secondary schools are computer literate.

Again, with respect to computer competency, 461(93.9%) of the teachers responded that they have no personal computers, hence, only 30(6.1%) of teachers agreed to have personal computers. The possession of personal computers shows the rate of usage of computers among teachers in the Akpor District of Rivers state. On the issue of effective use of computers for instructional purposes, 402 (81.9%) of teachers responded that they could not effectively use computers for instructional purposes, while only 89(18.2%) teachers could use computers for instructional purposes, which is detrimental to the 21st-century students. On the use of computers for administrative purposes, 403(82.1%) of the teachers could not efficiently use computers for administrative usage; while only 88(17.9%) of the teachers used computers for administrative purposes. The above results in table 1 revealed the low level

of teachers’ computer literacy/competency in public secondary schools in the Akpor District of Rivers state’

From table 2, 483(98.4%) of teachers disagreed that there are enough computers in public secondary schools in the Akpor District of Rivers State, while only 8(1.6%), either out of oversight stated otherwise. This shows that computers are not available in most schools in the Akpor district of Rivers State; hence, need to be rescued so that they can race with time.

The result in table 3 shows that 466(94.9%) against 25(5.1%) respondents disagreed that computers are accessible in public secondary schools in the Akpor District of Rivers state. This reveals that even the insignificant numbers of computers that are available are rarely accessible to teachers for instructional purposes in public secondary schools in the Akpor District of Rivers state.

TABLE 1: What is the level of teachers’ computer literacy/competency in public secondary schools? in the Akpor district of Rivers state?

S/N	Item	A	SA	D	SD	Total
	Assessing the level of teachers’ computer literacy/competency	F (%)	F (%)	F (%)	F (%)	F (%)
1	I am computer literate but does not have a professional certificate in computer science	27 (5.5%)	54 (11.0%)	38 (7.7%)	372 (75.8%)	491 (100%)
2	I have my own personal computer	9 (1.8%)	21 (4.3%)	49 (10.0%)	412 (83.9%)	491 (100%)
3	I can effectively use computers for instructional purposes	15 (3.1%)	74 (15.1%)	47 (9.6%)	355 (72.3%)	491 (100%)
4	I can effectively use computers for administrative purposes	6 (1.2%)	82 (16.7%)	31 (6.3%)	372 (75.8%)	491 (100%)

Key: A=agree; SA= Strongly Agree; SD = Strongly Disagree; and D=Disagree.

TABLE 2: What is the level of availability of computers in public secondary schools in the Akpor district of Rivers State?

S/N	Item	A	SA	D	SD	Total
	Assessing the Level of availability of computers	F (%)	F (%)	F (%)	F (%)	F (%)
1	There are enough computers in my school	0(0%)	0(0%)	27 (5.5%)	464 (94.5%)	491 (100%)

TABLE 3: What is the level of accessibility of computers in public secondary schools in the Akpor? District of Rivers state?

S/N	Item	A	SA	D	SD	Total
	Assessing the Level of accessibility of Computers	F (%)	F (%)	F (%)	F (%)	F (%)
1	I have access to computers in my school	8 (1.6%)	17 (3.5%)	57 (11.6%)	409 (83.3%)	491 (100%)

TABLE 4: What is the level of utilization of computers in the teaching-learning process in public Secondary schools in the Akpor district of Rivers State?

S/N	Item	A	SA	D	SD	Total
	Assessing the level of utilization of computers	F (%)	F (%)	F (%)	F (%)	F (%)
1	I can effectively use computers for instructional purposes	15 (3.1%)	74 (15.1%)	47 (9.6%)	355 (72.3%)	491 (100%)
2	I can effectively use computers for administrative purposes	6 (1.2%)	82 (16.7%)	31 (6.3%)	372 (75.8%)	491 (100%)

Item 1 in table 4 revealed that 402 (81.9%) of respondents (teachers) cannot effectively make use of computers for instructional purposes in public secondary schools in the Akpor district of Rivers State; while only 89(18.2%) respondents agreed to the statement. Also, item 2 on the same table on the use of computers for administrative functions revealed that 403(82.1%) of the teachers could not make use of computers for administrative tasks; while 88(17.9%) of the teachers agreed with the statement, positively showing that the use of computers in the teaching-learning process in public secondary schools in the Akpor district of Rivers State is still

at its lowest ebb tide. This conforms with Bhalla (2014) assertion that only a few teachers integrate computers as teaching tool or learning device.

On the provision of laboratory facilities in public secondary schools in the Akpor district of Rivers State, 491(100%) of the respondents disagreed with the statement. This shows the terrible state of laboratory facilities in the aforesaid secondary schools in the district, where not even one laboratory exists in the whole area. This is in agreement with Gbadamosi (2006) assertion that there is inadequate or non-

existence of physical facilities and material resources, such as computer rooms, furniture, etc.

TABLE 5: What is the level of laboratory provision in the teaching-learning process in public Secondary Schools in the Akpor district of Rivers State?

S/N	Item	A	SA	D	SD	Total
	Assessing the provision of computer laboratories/rooms	F (%)	F (%)	F (%)	F (%)	F (%)
1	There is a computer laboratory in my school	0 (0%)	0 (0%)	8 (1.6%)	483 (98.4%)	491 (100%)

On examination of the various challenges confronting the effective use of computers in public secondary schools in the Akpor District of Rivers State, item 1 on table 6 shows that 491(100%) of respondents disagreed with the statement. This corresponds to the assertions by Adomi (2005a). The author avowed that the electricity problem has been a persistent problem militating against ICT application and use in Nigeria, thereby making the few schools with ICT facilities unable to use them regularly. In the same manner, Osadebe and Ojukonsin (2018) stressed that many schools are not yet connected to electricity, especially in developing countries, which Nigeria is inclusive.

TABLE 6: What is the level of challenges affecting the effective use of computers in public Secondary schools in the Akpor district of Rivers State?

S/N	Item	A	SA	D	SD	Total
	Assessing the challenges affecting the effective use of computers	F (%)	F (%)	F (%)	F (%)	F (%)
1.	There is constant electricity in my school	0 (%)	0 (0%)	12 (2.4%)	479 (97.6%)	491 (100%)
2.	There is a stand-by generator in the school	0 (%)	0 (0%)	2 (0.4%)	489 (99.6%)	491 (100%)
3.	There is a study leave and in-service training programme for teachers to be computer Literate/ competency	0 (0%)	0 (0%)	11 (2.2%)	480 (97.8%)	491 (100%)
4.	I am willing to learn more about computer technology	26 (5.3%)	452 (92.1%)	3 (0.6%)	10 (2.0%)	491 (100%)
5.	Computers are difficult to learn at this age	2 (0.4%)	17 (3.5%)	12 (2.4%)	460 (93.7%)	491 (100%)
6.	There is adequate computers for training and instruction in my school	0 (%)	0 (0%)	7 (1%)	484 (99%)	491 (100%)
7.	There is in-service training for computer literacy	0 (%)	0 (0%)	5 (1.0)	486 (99%)	491 (100%)
8.	There is a computer technician/professional that handles maintenance of faulty computers and their peripherals in my school	2 (0.4)	0 (0%)	0 (%)	489 (99.6%)	491 (100%)

Furthermore, in the same manner, item 2 on the same table 6 revealed that 491(100%) of respondents (teachers) disagreed that there is a standby generator in the schools within the geographical delineation. This shows the inadequate or non-existence of physical facilities and material resources available in the school within the district, such as electricity or electric generators as declared by (Gbadamosi, 2006) that will promote the effective use of ICT at the secondary school level of education. It further means that even the few computers - 8(1.6%) that are available as seen in table 2 cannot even be used when there is no electricity. This is a very bad signal for Nigerian students in the 21st-century classroom.

Again, Abdul-Rahman (2009), in his write-up, highlighted that training teachers in using various computer skills help them greatly in the education sector by increasing their experience considering their learning needs in the teaching-learning process. In the same manner, Mohammed (2012) placed much importance on in-service teacher training in developing the entrepreneurial spirit and independence of teachers, and also in helping the teachers' acquisition and reproduction of information, improving their teaching performance by employing modern technology in the field of the teaching-learning process. Despite the above importance attached to computers and teachers' training, the information in table 6, item 3, shows that 491 (100%) of the respondents disagreed that there is a study leave or in-service training programme(s) for teachers to be computer literate/competence in the Akpor District of Rivers State. This means that even the

478(97.4) willing teachers', based on the result in item 4, table 6 above cannot be provided with study leave or in-service training for effective teaching of contemporary digital students in the district.

TABLE 7: What is the number of professionally trained computer teachers in public schools in public secondary schools in the Akpor district of Rivers State?

S/N	Item	A	SA	D	SD	Total
	Assessing the number of professionally trained computer teachers	F (%)	F (%)	F (%)	F (%)	F (%)
1	I have a professional certificate (Diploma/Degree) in computer science	0 (0%)	12 (2.4%)	0 (0%)	479 (97.6%)	491 (100%)

Furthermore, on the adequacy of computers for instruction in the above district, the result in item 6 of table 6 shows that 491(100%) respondents revealed that there are no sufficient computers for instructional purposes in the schools. To worsen the whole situation, the available few computers cannot be maintained based on the result on item 6, table 6, where 491(100%) of computer technician/professional that handles maintenance of faulty computers and their peripherals in the schools are not in existence. This is a serious situation that

requires immediate attention from all stakeholders in the education sector.

On the examination of professionally trained computer teachers, table 7 shows that 479(97.6%) of teachers in the area have no professional computer certificates, while only 12(2.4%) of teachers in the district have professional computer certificates.

IV. SUMMARY/CONCLUSION

The use of 21st-century technologies in teaching-learning cannot be overstressed. These new technological advances pose a big challenge to teachers, especially digital immigrant teachers. The use of these technologies in enhancing education delivery by educationalists in contemporary times is not in doubt, and it is on a daily increase. Therefore, teachers must be prepared to adapt, adopt, use these technologies, and must become an integral skill in every teacher's professional repertoire (Bhalla, 2014). The teachers must be aware of the changes in adopting new technologies in the classrooms and be prepared to face the challenges as they come. It is unfortunate as Bhalla (2014) observed that the majority of teachers use computers only for support in educational practice while only a few integrate computers as a teaching tool or learning device.

This should not be the case, as today's learners are much more different from the yesteryears'. However, the researchers have reviewed related literature as perceived on the topic. The need for teachers' computer literacy and competence was concisely discoursed. Also discussed are some of the obstacles hindering teachers' technological competence required for the 21st-century classroom. Nonetheless, remedial measures were proffered to ameliorate the challenges as perceived by the teachers, and appropriate recommendations or suggestions were made to that effect.

Recommendation

Robb (2006) points out the need for school administrations to foster self-directed learning of technology among their teachers by providing appropriate resources and a milieu. The school authorities should enhance teachers' computer literacy/competency level by providing computer training and re-training opportunities, such as outright study leaves, seminars, conferences, and workshops. The researchers also suggested that school authorities/administrators should reach out to wealthy individuals, companies, and corporate bodies within the schools for financial assistance to enable them to purchase adequate computers for the schools under study. Governments and policymakers at all levels of the education system should also increase their financial allocations, invest in ICTs tools, and provide computers to schools for teachers' use, especially for computer instructions, just as in India, where the Ministry of Human Resource Development formulated National Policy on ICT in school education to support, and sustain ICT activities and processes to improve access, quality and efficiency of ICT tools and resources to all students and teachers (Bhalla, 2014). Much effort should also be made to provide teachers with ample opportunities during their education to develop the competencies needed to teach

with technology in their classes (Angeli, 2004). Curriculum providers should create sustainable educational programmes to train teachers and prepare students to succeed in the global economy (Bhalla, 2014). Furthermore, the government at all levels should provide enough technology devices for teachers to have regular access, ample support, and time for them to learn how to use and plan for computer usage, and provide a school climate that will encourage an experimental approach to the teaching of computers to gain the expertise and comfort levels demonstrate same in the classroom (Angeli, 2004)). Much effort should also be made to provide teachers with ample opportunities during their education to develop the competencies needed to be able to teach with technology in their classes (Angeli, 2004).

Bhalla (2014) further recommended that it would be meaningful to use time and spend money to improve teachers' competence competency levels in various aspects related to the use of computers in the teaching-learning process in this century, knowing that computer competence is a strong determinant of use of computers by teachers in both higher and lower educational institutions. The scholar further recommended continuous assessment of teachers' computer understanding and skills to improve their computer competence level. Further, and as earlier stated, Victor et al (2020) also advised that there is a need to provide regular orientation and training programmes to resolve their computer-related issues. There is a need to formulate an information and communication technology policy for the education system in this part of the world to realize optimum utilization of computers in teaching and learning processes.

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