

Survey of the Use of Information and Communication Technology (ICT) In Public Secondary Schools in Akwa Ibom State

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ABSTRACT

Information and communication Technology (ICT) is the bedrock of any development, spanning from simple household chores to administration of small, medium, large and extra-large scale businesses including the administration of secondary schools. The recent introduction of computer-based examinations in secondary schools calls for the survey of the state of ICT facilities in our secondary schools especially those in Akwa Ibom state. Thus, this study is aimed at examining the state of facilities necessary for proper administration of secondary schools in Akwa Ibom state. It started with a self-study of the facilities in selected secondary schools through observations to obtain quantitative data. This was followed with an administration of questionnaires to 50 secondary schools administrative staff and teachers to collect qualitative data. The datasets collected were analysed using simple averaging technique. A startling revelation shows that only 4 out of the 50 respondents admitted the existence of a computer (laptop or desktop) in their schools with none of them having a website or internet connectivity. Administration is still conducted in the old fashioned, analog method with typewriting and long hands used in writing memos to staff. Computation of students' terminal results and staff's emoluments are still done with pen and paper. It was however observed that most staff (80 %) communicate through GSM phones and Whatsapp platforms. Another revelation worthy of note is that 64% of the staff are semi computer literate with the remaining ones not being literate at all. With these findings, it is apt to conclude that the level of computer literacy of the staff has impacted negatively on the willingness to acquire the ICT facilities. To this end, Government and other education stakeholders including parents of the students are enjoined to work assiduously toward an overhaul of the administrative structure of secondary schools in Akwa Ibom state with the view of improving on it as a step to preparing the students for a fully ICT-based education at all levels.

Keywords: ICT, Computer, Website, School Administration, GSM Phones, Internet

INTRODUCTION

Computers started as number crunching machines and rapidly metamorphosed into text and sound processing devices. Following the history of computers to the present age, there seems to be no other device that has undergone tremendous innovations and growth like the computer. From the stand-alone systems to computer networks which started as the Local Area Networks (LAN) connecting tens to thousands of computers within a building or premises to transfer and share resources in few seconds or microseconds. The innovation grows to the internet, which has become one of the greatest inventions of the modern man. With all these, computers have moved from simple processing devices to information and communication (ICT) tool used in solving complex real-world problems.

Public administrators including those in schools and colleges have found resources offered by ICT second to none in assisting them in their day-to-day running of their establishments and in supporting their decision making. Such resources include;

1. Computers; computers are used in processing and storing school records and documents for teaching and learning, computation of students examination results and emoluments of staff.
2. Internet Access; The internet enables on-line research, communication and access to digital resources.

3. Digital Libraries; Digital libraries provide access to an unlimited educational materials for use by both the staff and students of a school for effective learning and teaching.
4. Educational software; Educational software assists in efficient and effective teaching and learning of various subjects seamlessly without the barrier of distance.
5. Assessment tools; Assessment tools assist in efficient assessment of students and staff appraisal and offer quick, unbiased and sentiment free feedback.
6. Monitoring devices; these devices help in tracking the punctuality, regularity and attendance of staff and students using biometric sensors.
7. Skilled manpower; This is the driving force, the level of ICT literacy is an enabler to using the other resources and can drive innovation and change in the administration of schools.

The duty of coordination, supervision, managing and motivation of staff and students can be made easy and interesting if school administrators employ these resources. The benefits that are derived in doing these include among others; improved record keeping, accurate and prompt computations, enhanced communications, proper resource utilization and management and efficient and an all-inclusive decision making. However, inadequate infrastructure, limited access to training required by the staff, high cost of bandwidth and high reliability of electricity and attitude of staff and resistance to change in preferring the conventional methods of doing business could hamper the proper utilization of ICT in the administration of schools. This study is therefore set out to examine the extent that ICT infrastructure is deployed in the administration of secondary schools in Akwa Ibom state, Nigeria. Actionable recommendations would be made to policy makers, educators and stakeholders in the educational sector of the state for implementation. The instruments employed to collect data are personal study of presence of these facilities in the school and questionnaire administered to the staff of some of the schools.

LITERATURE REVIEW

Two theories are considered to drive our study, namely; the Open system theory and Behavioural Management Theory. These theories provide an addendum to the view on how ICT can be integrated to the administration of secondary schools. Open system theory views organizations as entities that interact dynamically with their environment, relying on external resources to sustain and grow. Kombos and Mwila (2024) consider schools, as open system that depend on ICT infrastructure, funding, and training to enhance administrative processes. Without access to these external resources, administrative efficiency and adaptability are significantly compromised (Dishaw and Strong, 2015). The theory highlights the need for schools to maintain robust linkages with external stakeholders such as governments, private sector partners, and technology providers, to ensure sustainable ICT adoption.

In Behavioural Management Theory, the importance of human factors in organizational success is stressed. The theory as developed by Elton Mayo, argues that attitudes, motivation and group dynamics play a critical role in achieving organizational objectives. According to Kombos and Mwila (2024), the willingness of administrators to adopt and use technology effectively is influenced by their attitudes, training, and perceptions of its value. Behavioral Management Theory underscores the importance of addressing these human factors through capacity building and change management initiatives.

The use of data in secondary school administration currently has multiple measures and it acts as an eye opener to administrators in demographics, school processes, student learning, as well as perceptions and projections (Bernhardt, 2010). We are living in the information and technology age where schools educators must possess computing capabilities. They must be users of technology and role models to those they lead. Yee (2012) suggests that it is difficult to imagine a leader who does not use technology trying to convince teachers that it is important: principals in secondary schools need effective and fast communication and accessibility to information as Wiley (2013) remarks. As a professional educator, you are a professional communicator. Administrators need to correspond through e-mail and the internet, creating websites for school marketing. They can save time while using a program to communicate to parents, teachers, students, other school administrators, business executives, suppliers and the wider community. Effective educators must possess ICT knowledge.

Whitehead et al (2003), on “changing strategies in technology” noted that administrative leaders have misdirected planning efforts envisioning technological direction around where educators are and how to move

forward. Instead, he suggests that we envision where we want to be and then work backward in designing the appropriate frameworks to get us there. According to Maki (2008) in her study in Cyprus Secondary Schools, administrative subsystems include: personnel administration, students administration, resources administration, financial administration and general administration. From this study, Maki referring to a 2006 study by the European Commission in Cyprus revealed that school in Cyprus used ICT both as a subject in the school curriculum and as a teaching tool in secondary schools. Empirica (2006) observed that, although significant steps had been taken by the Cypriot government regarding ICT in secondary schools, the utilization of Information Technologies (IT) and Information System (IS) in educational management and administration still remained at an early stage.

Tearle (2004), studies in the United Kingdom, the Netherlands, Malaysia and South Africa corroborate the fact that school educators require facilitation with appropriate computer facilities and related infrastructure to optimize the application of ICT in their teaching and administrative engagements. For effective schools, administrative and management subsystems should be assisted by computer information systems.

Saiti and Prokopiadou (2009), in their research on the impact of ICT on school administration, indicate that ICT in the school environment may be considered as a synonym for modernization of all organization, including schools, as they provide for advanced technological tools and applications. In Greece, the implementation of new technologies in secondary education has rapidly increased. This adoption of ICT reinforces the teaching process, and also facilitates administrative transactions. The use of ICT in the school environment is considered to be part of the extensive technological modernization of administration and education, as well as electronic government (e-Government) and electronic learning (e-Learning). The introduction of innovative technological applications in schools is connected with changes, not only at the level of teaching and learning, but also in carrying out administrative tasks in schools. Gusen et al (2021) ICT is becoming increasingly important in societies' daily lives and in educational system. A'mar, F. and Eleyan, 2022) Observed that ICT has in some contexts also become crucial to the teaching-learning interaction through strategies digital whiteboards, using students own smartphones or other devices for learning during class time, and the flipped classroom model, where student watch lectures at home on the computer and use class time for more interactive exercises. (Babate & Jakwa 2021). Utilization ICT boosts performance, allows for visual observation, improves perception and speeds up learning.

Use of Information and Communication Technology

Organizations including secondary schools across the globe have found information as a very valuable resource that gives competitive edge, economic prospect and management opportunities. Information and communication technology is the use of computers and other technology in the management of information and other organizational activities. ICT offers new capabilities that resulted in significant changes in organizations, enhanced new methods of information dissemination within and also outside organization (Ugwoke, Onu, Agangan and Ugwuanyi, 2015). ICT use in the work environment help individuals to acquire critical and creative mind to capitalize on the opportunities provided by the explosive growth of information, knowledge and technology. ICT use in the 21st Century school environment is part of the technological modernization of educational administration.

Higgins, (2017), listed the following as the available ICT devices for educational administration; internet, websites software application (Microsoft Word, Excel, Access, Education Management Information System) as well as hardware (telephones, printers, scanners, photocopying machines, multimedia projectors, overhead projectors, computers, laptops, tablets, DVD Players, Smart-boards). All these devices can be used for communication, word processing, presentation, spreadsheet, database, internet and email, (Kumar, Rose and D' Silva, 2008). The use of these devices in school administrative tasks however depends on the availability and functionality, purpose of use and external use.

Various studies reported the influence of ICT use on secondary school administrative effectiveness; Lin et al (2011) finding from their studies of public secondary schools in Malaysia revealed that ICT usage enhanced personnel and financial management of the schools as well as improved record keeping of all aspects of the school's activities. Literature revealed that ICT use increased school efficiency and reduced unnecessary

bureaucracy in school administration (Angie and Ugwu, 2013), increased productivity (Olayemi and Omotayo, 2012), make communication to be cheap, fast and reliable as well as enabled easier retrieval of information (Singh and Munianchi, 2012), enhanced accountability and reduced work loads in management of school account (Makwara, 2014). Additionally, ICT use improved curriculum supervision Atsu, (2014), Online printing of student's results, registration for external examinations such as senior secondary school certificate and National Examination Council. As well as increased efficiency in record management, grading systems in schools and tracking students academic progress (Okon, et al 2015). However studies in some public secondary schools in some states in Nigeria also found ICT use to enhance school administration but reported that some that the extent of use of ICT devices were low in Rivers State, (Olayemi and Omotayo 2012) while Ogunshala and Abiodun (2017) and Oyedemi (2015) found ICT usage to be moderate in Federal Capital Territory, Abuja, and Osun State respectively. Therefore, information communication technology use enhances the administrative functions of school leaders and crucial to achieve effective administration of secondary school in the country. Students may get a lot of knowledge and skills while using Information and Communication Technology. Amilusholihah et al. (2024) observed that ICT play a crucial role in enhancing teaching and learning processes in secondary schools. Teacher Digital Competence (TDC) is essential for facilitating interactive and adaptive learning environment. Rahmawati et al. (2024) observed that teacher's digital literacy is essential for effective ICT integration in secondary schools. ICT integration can improve student learning outcomes and achieve Sustainable Development Goal (SDG) on Quality education. Adu and Zondo (2024) observed that teachers' digital literacy skills in teaching economics in South African Secondary School. Galindo-Dominguez et al. (2024) investigated the relationship teachers' digital competence and attitudes towards artificial intelligence in education. Okon et al. (2015) investigated the relationship between ICT utilization and principal's administrative effectiveness in public secondary schools in Akwa Ibom State, Nigeria and found a significant relationship between ICT usage in the communication process and record keeping and Principal administrative effectiveness. Ogunshala and Adeniyi, (2017) observed that ICT device commonly used by school managers for administrative duties were the mobile telephones to communicates information especially to the Parent/guardian of students and security personnel.

MATERIALS AND METHODS

Fifty (50) schools participated in the study. Close-ended Questionnaires were used for qualitative data collection while personal observations were used for quantitative data collection.

The questions are summarized into 4 items namely, Device for data processing, device for communication, Device for advertising and ICT illiteracy and simple averaging was used in the processing the results. The findings for each of these are reported in the next section.

RESULTS

Device for Data Processing:

Investigation reveals that only 4 out of 50 schools that participated used computers in storing and processing of data. This represents that 8%, 16 out of the 50 schools use type writers in processing their documents. This presents 32% with 30 out of the 50 schools use hand to write their documents. This represents 60% of the participates 2 schools when visited reported that though they have computers they do not use them because of non-availability of electricity to power the systems so the resort to using hand in writing.

Device for Communication:

10 out of the 50 schools reported that communication between teachers, Parents and Administrators are done through physical voice and delivery from a human messenger. This represents 20% of the participants. The remaining 40 representing 80% use GSM phone and Whatsapp message. Personal observations show that all the teachers and administrators contacted have phones but, on some occasions, they find it difficult to communicate due to poor network services or inability to power their phone batteries.

Devices for advertising

13 representing 26% out of the 50 participating schools use poster and flyers in advertising activities like sports, send forth ceremonies, PTA meetings etc. of the school. This represents 26%, while the remaining 37 (74%) use door-to-door, this means student and teachers going from house to house to announce the occasion. None of the participants use a website as indicated in the instrument (questionnaire). This shows that none of the schools have a website.

Computer Literacy:

18 (36%) of the participant indicate that they have not been trained formally in the use of computer, though personal interactions with some of them show that they have an understanding of the functions of the computer but cannot operate.

The inadequate availability of ICT proposes that organizations are influenced by an interaction with their external environment. This interaction allows the system to renew and grow over time. Schools with insufficient access to ICT tools are not able to interact with their external environment or adapt to advancement in Information Technology. Without Information and Communication Technology, schools remain disconnected from the digital era and innovations that can change administrative processes of the school efficiently and effectively. The theory highlights the need for school to maintain robust linkages with external stakeholders like government, private sector and technology provider

DISCUSSION OF RESULTS AND IMPLICATIONS OF FINDINGS

Device for Data Processing

Most schools do not store and process their documents in a computer device. This could be attributed to poor finding; lack of steady power supply and interact connectivity. In addition, the administrators are reluctant to change from their old ways of doing things. They skill believe and have confidence in paper work. Personal study shows that most of them are not computer literate and are not ready to subject themselves to learning a new skill at old age.

Device for Communication

Findings in terms of communication devices show that apart form the qualitative data collected through questionnaires, personal observations show that most of the teachers visited have GSM phones. Some of them however complained that poor network services at times make them to communication through physical voice to the parents, more so, where some of the parents do not have the GSM device.

Device for Advertising

Schools still engage in house-to-house advertising using their students and teachers as agents. This is not in line with modern technology of ICT enhanced advertisement using websites. The reasons behind this are not unconnected with the fact that most schools do not have computers as earlier reported. Another reason could be that if they have and use such, their target audience (Parents and general public) may not get such information because of their lack of such devices.

Computer Literacy

Apart from the qualitative data that shows lack of training, personal observations show that the administrators who are mainly seasoned teachers nearing retirement age do not really embrace ICT and as such have refused to be trained. The implication is that their attitudes do not encourage ICT based administration and discourage the young ones that got trained in the use of ICT facilities. Poor electricity supply and in some places none at

all and poor accessibility to GSM network services have also hindered accessibility to computer services and discourage the administrators from embarking on such a “wild goose chase”.

CONCLUSION AND RECOMMENDATIONS

Based on the findings, it is seen that public secondary schools in Akwa Ibom State are administered by experienced teachers who have acquired the old skills of doing things and find it difficult to embrace change. This has resulted in their priorities that ICT based administration is the least. Though findings show that acquiring ICT equipment is very expensive considering the budget of secondary school education, but prioritizing the needs could help so much in managing the scarce resources of ICT is given its place on top. Apart from GSM phone communication, other ICT facilities such as computers and internet connectivity are scarcely found in Akwa Ibom State Public Secondary Schools. This has affected the learning of the important technology by students and can impact negatively in the future.

Recommendations

The following recommendations are made to aid in positioning public secondary schools in Akwa Ibom state in the global ICT map;

Stakeholders including government and parents should embark on immediate overhaul of the administrative structure of Akwa Ibom State public secondary schools with a view of improving on ICT development.

Government should ensure that teachers and administrators are computer-literate and that no person is appointed an administrator if the person is not well vast in computing.

There should be uninterruptible supply of electricity in public secondary schools.

Computer Literacy programme should be mounted in all secondary schools in the state with well-equipped laboratories.

Seminars and conferences on computer education should be organized for teachers and school administrators regularly.

Further studies could be carried with open-ended questions as opposed to the close-ended used in this study. This will capture more detailed responses from the respondents to help in a comprehensive policy formulation. Findings from a research to examine the effect of ICT on teaching and learning in public secondary schools can also be beneficial in this regard.

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