



MANAGING CHALLENGES AND STRATEGIES FOR ENHANCING PROCUREMENT AND UTILIZATION OF MODERN TECHNOLOGY FOR EFFECTIVE TEACHING IN SECONDARY SCHOOLS IN OBIO-AKPOR LOCAL GOVERNMENT AREA OF RIVERS STATE

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ABSTRACT

This study examined the management of challenges and strategies for enhancing procurement and utilization of modern technology for effective teaching in secondary schools in Obio-Akpor Local Government Area of Rivers State, Nigeria. The research highlighted the critical role of Information and Communication Technology (ICT) in enhancing instructional delivery, student engagement, and overall academic performance. However, it identifies several challenges, including inadequate funding, poor infrastructure, lack of trained personnel, and erratic power supply, which hinder the effective integration of modern technology in teaching. The study adopted a descriptive survey research design, utilizing a structured questionnaire to collect data from 178 respondents across selected secondary schools. The findings revealed that while some ICT tools are available, their utilization remains significantly low due to procurement inefficiencies, lack of maintenance, and limited teacher training. To address these challenges, the study recommended increased government funding, strategic public-private partnerships, capacity-building programs for teachers, and improved infrastructure to support ICT integration. Implementing these strategies will enhance the adoption of modern technology, improve teaching effectiveness, and align secondary education with global digital learning standards.

Keywords: Management, Challenges, Strategies, Improved, Procurement, Use, Modern Technology, Teaching Effectiveness, Secondary Schools, Obio-Akpor, Rivers State.

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INTRODUCTION

In the 21st century, modern technology has become a fundamental tool in improving the teaching and learning process. The integration of Information and Communication Technology (ICT) in

education has revolutionized traditional teaching methods, making learning more interactive, efficient, and accessible. Schools worldwide are leveraging digital tools, including computers, projectors, smartboards, and internet-based learning platforms, to enhance students' engagement and comprehension. However, the successful adoption and utilization of modern technology for teaching effectiveness in secondary schools depend on adequate procurement, proper management, and effective implementation strategies. In Obio-Akpor Local Government Area of Rivers State, Nigeria, the adoption of modern technology in secondary schools faces significant challenges that hinder its full integration into the educational system. These challenges necessitate the need for strategic management approaches to improve procurement processes and optimize the use of technological tools for enhanced teaching and learning outcomes.

Education in Nigeria is undergoing continuous transformation due to the increasing reliance on modern technology to improve teaching effectiveness. As the world shifts towards digital education, secondary schools in Rivers State are expected to align with global standards by integrating ICT into their curricula. Despite the numerous benefits associated with technology-enhanced education, many schools in Obio-Akpor struggle with issues such as inadequate funding, lack of technological infrastructure, poor internet connectivity, and insufficient teacher training. The gap between policy formulation and actual implementation of technology-driven education remains a major concern. Without a structured approach to procurement and utilization, many schools fail to fully harness the benefits of modern technology in education.

The procurement of modern technology involves the acquisition of essential ICT tools such as computers, projectors, multimedia resources, and internet facilities. Efficient procurement ensures that these tools are not only available but also suitable for the intended educational purpose. However, in many secondary schools in Obio-Akpor, the process of acquiring and maintaining these technologies is often plagued by budgetary constraints, bureaucratic delays, and lack of transparency. Many schools receive outdated or substandard equipment, which further affects their ability to integrate technology into teaching. Furthermore, even when technological tools are available; their usage is often limited due to teachers' lack of digital literacy and insufficient technical support.

Statement of the Problem

Despite the increasing recognition of modern technology as a vital tool for effective teaching, many secondary schools in Obio-Akpor Local Government Area still struggle to integrate ICT into their teaching methodologies. Several factors contribute to this issue, including the high cost of technological devices, lack of financial investment in education, poor maintenance culture, and limited technical expertise among teachers. The procurement process for educational technology in public schools is often slow and inefficient, leading to delays in acquiring necessary tools. Additionally, there is a significant disparity between urban and rural schools in terms of access to technology, further widening the digital divide among students.

Another major concern is the underutilization of existing technological resources due to inadequate teacher training and resistance to change. Many educators lack the necessary skills to incorporate technology into their teaching practices effectively. Without proper training and support, teachers may revert to traditional chalk-and-talk methods, rendering technological investments ineffective. Furthermore, erratic power supply and poor internet connectivity pose additional barriers to the smooth integration of ICT in classroom instruction.

Aim and Objectives of the Study

This study examined the management of challenges associated with the procurement and use of modern technology in secondary schools in Obio-Akpor. Specifically, the objectives include:

- To assess the challenges in purchase and use of modern technologies for teaching effectiveness in secondary schools in Rivers State.
- To ascertain the strategies to improve the procurement and use modern technologies are available for teaching effectiveness in secondary schools in Rivers State.

Research Questions

The following research questions guided the study:

- What are the challenges in purchase and use of modern technologies for teaching effectiveness in secondary schools in Rivers State?
- What are the strategies to be adopted to ensure that these modern technologies are available and used for teaching effectiveness in secondary schools in Rivers State?

Significance of the Study

The findings of this study will be beneficial to various stakeholders in the education sector, including policymakers, school administrators, teachers, and students. By identifying the major challenges associated with the procurement and use of modern technology, the study will provide valuable insights into how these issues can be effectively managed. The research will also highlight best practices for integrating ICT into the teaching process, offering practical solutions to enhance teaching effectiveness in secondary schools.

For policymakers, the study will serve as a basis for designing and implementing policies that support technology-driven education. It will help in formulating strategies to allocate resources efficiently, improve procurement mechanisms, and ensure the equitable distribution of technological tools across schools. School administrators will gain insights into how to manage and sustain technological resources, ensuring that ICT investments yield maximum benefits for students and teachers.

Teachers, as primary implementers of technology in education, will benefit from recommendations on training and professional development programs. Enhanced digital literacy among teachers will lead to improved instructional delivery, increased student engagement, and better academic performance. For students, the effective use of technology will create an interactive and dynamic learning environment that enhances comprehension, critical thinking, and problem-solving skills.

CONCEPTUAL REVIEW

Challenges Associated with the Use of Modern Technologies for Teaching Effectiveness In Secondary Schools

There are lots of challenges associated with running ICT programmes at the secondary education level. Some of these challenges have been reviewed about by many scholars on this topic. The problem of unavailability of ICT facilities seems to emanate from high cost of purchasing ICT. The price of computer hardware and software continues to drop in most developed countries, but in developing countries, such as Nigeria, the high cost of computers is several times more expensive (Aduwa-Ogiegbaen & Iyamu, 2005). According to them, apart from the basic computers themselves, other cost associated with peripherals such as printers, monitors, papers, modem, disk drives are beyond the reach of most tertiary institutions in Nigeria. The institutions cannot also afford the exorbitant Internet connection fees.

Onifade (2007) and Ifinedo and Ololube (2007) listed some factors inhibiting the application and spread of ICT which are in three categories, and include; human capital factors (poverty, low literacy level, Poor IT skills). Institutional factors (poor internet access and low bandwidth, high cost of ICT services, lack of investments. The societal impact of information technology may be inhibited by such major factors. Uche (2006) stated that the level of implementation of modernized management information system may be affected by lack of equipment and funds, poor government support, burglary and vandalization, irregular power supply, lack of facilities, high cost of innovations and the year of record exposure.

Aja (2013) reported the reason for low level of utilization of internet by higher institutions which he traced down to the low level of connectivity, the high cost of cyber café facilities, lack of substantial online learning resources, faculty unwillingness to use ICTs for lack of skill on the part of staff and students. Despite the benefits of ICT in teaching-learning process, teachers and school management are not interested in using ICT for instructional purposes. This has been attributed to many factors which include inadequate funds, poor condition of electricity, teachers- staff attitude and pervasive poverty in the society.

In a nutshell therefore, there is acute shortage of trained personnel in application software, operating system, network administration and local technicians to service and repair computer facilities and those who are designated to use computers in tertiary institutions in the state may not have received adequate training that will make them rationally fit for the job and at worst, may not have receive any training at all necessary for the work. In Nigeria also, secondary school teachers lack the skills to fully utilize technology in curriculum implementation, hence the traditional chalk and duster approach still dominates in secondary school pedagogy. Information transfer using ICT is minimal in secondary schools in Nigeria.

Teachers in secondary schools need to be trained on educational technologies and the integration of computers into classroom teaching and other administrative activities. They need effective tools, techniques, and assistance that can help them develop computer-based projects and activities especially designed to raise the level of teaching in required subjects and improve learning for students (Aduwa-Ogiegbaen & Iyamu, 2005).

According to Ololube (2009), Ololube and Ubogu (2009) and Eseyin et al. (2013), the infrastructural challenges are in the nature of poor internet access and low bandwidth, high cost of ICT services, lack of investigation on ICT facilities in higher institutions, computer and DVD RW are rarely available and should be provided. Some of these inadequate facilities that are to

be made available in the use of modern technologies among secondary schools in the state are as follows:

- **Inadequate support facility and equipment:** for ICT to be efficiently utilized, support facilities like– laboratories, UPS, telephone, network generators etc. in the institution.
- **Inadequate funding:** according to Aja (2013) funding remains one of the important resources need to manage any school system. Therefore, there is need to improve on the financial resource of schools through budgetary allocation by the government so as to aid improvement of its ICT in the country.
- **Disbursement of funds:** disbursement of fund has to do with the distribution or allocation of funds in a system. Evoh (2007) stressed that favoritism relationship should not influence disbursement of funds to the school activity and administrators should avoid diversion of funds for a particular purpose.
- **Staff incapacity:** the inability of teachers to utilize ICT as part of their teaching methodology contributes to the neglect of insufficient ICT.
- **Population Explosion:** as a state like Rivers State to develops, there will be corresponding increase in student evolvment and number of facilities and equipment. This is because other migrants are coming into the state. The financial implication of increase in enrolments is one of the most dreaded consequences of social demand approach to education in all levels.

Strategies to Improve the Utilization of ICT Facilities in Secondary Schools

Proper Funding of Education Sector: There is the need for Government to stop paying lip-service to Education. Government ought to understand that nothing is free except ignorance and hence, it should properly fund Education very well. The population recommendation of 26 percent (26%) annual budget allocation to Education by UNESCO should be implemented by the Government. This will solve some of the problems in the Educational sectors, such as infrastructure, ICT facilities and a host of others. In fact, ICT facilities are capital intensive in terms of procurement, usage and maintenance.

Private Sector Participation: Private Sector Participation in Education should be encouraged for increased funding and better management of our Schools in the implementation of educational policies. Alumni Associations, Communities, Philanthropists and other Donor Agencies have vital roles to play in procuring some essential ICT facilities for our School.

Training and Re-training of Staff: The success of any Educational System is greatly anchored on the Staff. The ICT programmes will endure the test of time; if special attention would be given to the training and re-training of Staff. The essence of this exercise is to properly equip the staff with ideas and method in the use of ICTs.

Provision of Adequate Power Supply: Electricity is central to full utilization of ICTs. There is the need for respective authorities to ensure adequate supply of electricity in Schools. This can be achieved through alternative power supply like generating set.

Mass Supply or Availability of ICT Equipment: When there are modern technology gadgets all over the school, there will be a moral boost for everyone to want to learn or better still make good use of the available materials at their disposal.

Review of Related Empirical Literature

Azunda (2002) conducted a study on ICT availability and proficiency in secondary school in Rivers State. In the study, the population was made up of 750 teachers, the sample size of the study comprises of 300 teachers selected through random sampling technique by means of balloting without replacement. In the study, it was discovered that there was a correlation between ICT availability in secondary schools in Rivers State and attainment of high level of ICT proficiency among their users (teacher's, students and administrators). Secondly, the work revealed that while ICT are held constant at the point of providing them, the level of proficiency of the users' increases at faster pace if the users persist in practicing or using the ICTs constantly or uninterruptedly.

Theresa (2010) examined the use of ICT for enhancing the management of tertiary institutions in Rivers State with respondents of 160 Deans and HODs. Findings are that, there is no significant difference between the mean ratings of HODs of department of federal and state universities on the extent to which ICT is deployed in the planning functions. This implies that there is need to improve the low level of ICT application in management. The researcher studied the use of ICT among HODs and Deans but did not specifically states the services rendered to student which is the essence of education because without the student, there will be no management staff. That creates a gap for ICT proficiency and usage which this study will achieve.

In the same Babajide and Bolaji (2006) carried out a study on the application of information and communication technology in Nigeria secondary schools. The study investigated the level of availability of ICT facilities for teaching and learning then descriptive survey design was used for the study. The population consisted of all the teachers and principals of secondary schools in Ondo and Ekiti states. A sample of 320 teachers and 40 principals were randomly selected from the schools. The study revealed that ICT facilities were lacking in schools and teachers and students were to a little extent exposed to ICT. The benefit of ICT were also revealed as follows- ICT help make teaching and learning more interesting, help in distance learning programmes, help teachers to be up to date and also enhance teachers' productivity aid students' academic performance. Some notable challenges were irregular power supply, inadequate computer literate teachers and high cost of purchasing computers etc. It was recommended that government should increase funding of the education sector with emphasis on ICT.

Okorie et al. (2005) supported this by identifying some inhibitors for investigation at University of Port Harcourt which include lack of computer in ICT centre, inadequate facilities/equipment at the ICT centre, irregular power supply, absence of alternative source of power supply, lack of computer knowledge, expensive nature of ICT facilities and lack of willpower by management to embrace ICT revolution.

METHODS

The study employed a descriptive survey research design, which was deemed appropriate for gathering information on the use of modern technology for teaching effectiveness in secondary schools in Obio-Akpor Local Government Area of Rivers State, Nigeria. The study population consisted of all teachers in public junior and senior secondary schools within the area.

A sample of 178 respondents was selected using a simple random sampling technique from five secondary schools. Data collection was conducted using a self-structured questionnaire titled “Managing Challenges and Strategies for Enhancing Procurement and Utilization of Modern Technology for Effective Teaching in Secondary Schools Questionnaire” (MCSEPUMTTEQ). The questionnaire comprised two sections: Section A focused on demographic data, while Section B contained 10 items designed to address the research questions. Responses to the first research question were recorded using a two-point rating scale (Available/Not Available), while the second research question was measured using a four-point scale (Very High Extent = 4, High Extent = 3, Low Extent = 2, Very Low Extent = 1). Research questions three and four were assessed using a four-point Likert scale (Strongly Agree, Agree, Disagree, Strongly Disagree).

The instrument was validated by three Educational Management experts to ensure content accuracy. Reliability was tested using the test-retest method, where 20 copies were administered to respondents outside the study sample. After two weeks, the same questionnaire was re-administered, and the scores were analyzed using Pearson Product Moment Correlation, yielding a reliability coefficient of 0.81.

The questionnaire was personally distributed by the researcher, assisted by two research assistants, and collected within two weeks. A total of 178 completed questionnaires were retrieved and analyzed using simple percentage calculations.

RESULTS

Research Question 1: What are the challenges in purchase and use of modern technologies for teaching effectiveness in secondary schools Obio-Akpor LGA in Rivers State?

Table 1: Percentage scores representation of the challenges in purchase and use of modern technologies for teaching effectiveness in secondary schools Obio-Akpor LGA in Rivers

S/N	ITEM	RESPONSES AND PERCENTAGES									
		SA	%	A	%	DA	%	SD	%	Total Respondents	Total %
1	inadequate Funding to Provide modern technologies	95	53	55	31	21	12	7	4	178	100
2	Intermittent Disruption of Electricity	70	39	98	55	5	3	5	3	178	100
3	Lack of Expertise	60	34	93	52	18	10	7	4	178	100
4	Lack of Interest by Staff to Learn the Usage of modern technologies Storage Devices in Schools	58	33	95	53	15	8	10	6	178	100
5	Poor Attitude to Record Keeping	65	37	91	51	16	9	6	3	178	100

Table 1 showed the percentage scores on the challenges in purchase and use of modern technologies for teaching effectiveness in secondary schools Obio-Akpor LGA in Rivers State. From the table above, the result shows that Inadequate funding to provide modern technologies, intermittent disruption of electricity, Lack of interest by staff to learn the usage of modern technologies storage devices in schools, and poor attitude to record keeping, were accepted as the challenges for the purchase and utilization of modern technologies for teaching effectiveness in secondary schools Obio-Akpor LGA in Rivers State.

Judging from the percentage score, Inadequate funding to provide modern technologies, intermittent disruption of electricity, lack of interest by staff to learn the usage of modern technologies storage devices in schools, and poor attitude to record keeping, was to a very high extent accepted by the respondents as the major challenges for the purchase and utilization of modern technologies for teaching effectiveness in secondary schools Obio-Akpor LGA in Rivers State.

Research Question 2: What are the strategies to be adopted to ensure that these modern technologies are available and used for teaching effectiveness in secondary schools in Rivers State?

Table 2: Percentage scores representation on the strategies to be adopted to ensure that these modern technologies are available and used for teaching effectiveness in secondary schools in Rivers State

S/N	ITEM	RESPONSES AND PERCENTAGES									
		SA	%	A	%	D	%	SD	%	Total Respondents	Total %
6	Adequate Funding Should be Allocated in the Provision and Maintenance of modern technologies	98	55	60	34	16	9	4	2	178	100
7	Training of modern technologies Personnel	75	42	92	52	6	3	5	3	178	100
8	Conversion of Manual Jobs to Electronic Activities	68	38	100	56	7	4	3	2	178	100
9	Upgrading of modern technology Facilities to Suit Modern Standards	58	33	95	53	17	10	8	4	178	100
10	Introduction and Implementation of modern technologies Courses into the School Curriculum	70	39	98	55	7	4	3	2	178	100

Table 2 showed the percentage scores on the strategies to be adopted to ensure that these modern technologies are available and used for teaching effectiveness in secondary schools in Rivers State. From the table above, the result shows that adequate funds should be allocated in the provision and maintenance of modern technology facilities, Training of modern technology personnel, conversion of manual jobs to electronic activities, Upgrading of modern technology facilities to suit modern standards and the introduction and implementation of modern technology courses into the school curriculum, were all accepted as the strategies to be adopted

to ensure that modern technology facilities are available and used for teaching effectiveness in secondary schools in Rivers State.

Judging from percentage score, Adequate Funding for the Provision and Maintenance of modern technologies was to a very high extent accepted as one of the strategies to be adopted while Training of modern technology personnel, conversion of manual jobs to electronic activities, Upgrading of modern technology facilities to suit modern standards and Introduction and implementation of modern technology courses into the school curriculum, were to a high extent accepted as strategies to be adopted to ensure that modern technology facilities are available and used for teaching effectiveness in secondary schools in Obio Akpor L.G.A in Rivers State.

DISCUSSION

The Challenges of the availability and use of modern technologies for teaching effectiveness in secondary schools in Obio-Akpor LGA of Rivers State

The result was able to reveal some of the challenges confronting the availability and utilization of ICT facilities. Thus, from the analysis, it showed that inadequate funding, irregular power supply, poor attitude to record keeping and lack of interest by the members of staff to learn the usage of modern technology storage facilities in schools all served as the major challenges facing the availability and utilization of modern technologies for teaching effectiveness in secondary schools in Obio Akpor L.G.A of Rivers State. This corresponded with the findings of Okorie et al. (2005), Badmus (2004) and Olaniyan and Olabanji (2006) by identifying some inhibitors such as lack of computer in ICT center, inadequate facilities/equipment at the ICT center, irregular power supply, absence of alternative source of power supply, lack of computer knowledge, expensive nature of ICT facilities and lack of willpower by management to embrace ICT revolution. This could result in outright delay in teaching effectiveness in secondary schools in Obio Akpor L.G.A of Rivers State.

The strategies to be adopted to ensure that ICT facilities are available and utilized in the management of tertiary institutions in Rivers State

The findings from the study showed that all the under-listed points such as adequate funding, effective training of modern technology personnel, conversion of manual jobs to electronic jobs, upgrading of modern technology facilities, introduction and implementation of modern technology courses into the school curriculum were seen to be the strategies to be adopted by secondary schools to ensure that modern technology facilities are available and utilized for teaching effectiveness in secondary schools in Obio Akpor L.G.A of Rivers State.

This is in line with the studies conducted by Nwamara (2018), Ighofivwioni (2014) and Ogunsola (2005). Their purpose of the studies was to find out the true position of the Nigerian professional teacher who had always acted as the leader at school, in the electronic generation. Their findings revealed that teachers sampled, only less than 12% claim to be part in the e-generation cadre. Therefore, the result implies that in every 1000 Nigerian professional teachers, not more than 33% could be said to be of E-generation. It was recommended that since the world economy is drifted to E-generation everything: E-commerce, E-mail, E-law, E-world, the

abundance of riches of these E-facilities ought to be meaningful. More so, teachers who are closely relied to these facilities should facilitate to a desirable position in this E-generation.

CONCLUSION

The integration of modern technology in secondary schools is essential for enhancing teaching effectiveness and preparing students for the digital age. However, significant challenges hinder the seamless adoption of technology in education. Effective management strategies are required to address procurement issues, ensure adequate funding, and promote digital literacy among teachers. Implementing targeted interventions will help schools in Obio-Akpor to overcome these challenges and create a technology-driven educational environment that fosters student engagement and academic success. This study provided practical recommendations to enhance the procurement and use of modern technology that will ultimately contribute to the improvement of secondary education in Rivers State.

Recommendations

The study provides two recommendations based on the findings:

- Increase government funding and public-private partnerships, this involves government towards the allocation of more funds for the procurement and maintenance of modern technology in secondary schools. Additionally, partnerships with private sector organizations, NGOs, and international donors should be encouraged to provide financial and technical support. This will ensure that schools have access to essential technological tools such as computers, projectors, and internet facilities, thereby enhancing teaching effectiveness.
- Government should implement comprehensive teacher training programs by regularly training and capacity-building workshops should be organized for teachers to improve their digital literacy and proficiency in using modern technology for instruction. Training programs should focus on integrating ICT into lesson planning, utilizing digital learning platforms, and troubleshooting basic technical issues. This will ensure that teachers can effectively use technology to enhance student engagement and learning outcomes.

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