

NIGERIA'S INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) POLICY SUPPORTING ICT INTEGRATION INTO THE TEACHING AND LEARNING PROCESS IN SECONDARY SCHOOLS IN BAYELSA STATE, NIGERIA

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Abstract

This paper examined Nigeria's Information and Communication Technology (ICT) Policy supporting ICT Integration in Secondary Schools in Bayelsa State, Nigeria. One research question guided the study. Key Informant In-depth Interviews (IDIs) and Teachers' Focus Group Discussions (FGDs) were adopted in gathering data from school administrators and secondary school teachers in Bayelsa State, Nigeria. The IDIs and FGDs were tape recorded and transcribed verbatim after each discussion. Adequate interpretations of the participants' statements were ensured and transcripts were studied and statements that had contextual importance or connotations were extracted and used as excerpts to answer the research question. The results indicated that Nigeria's National ICT Policy supported the use of technology in education with several initiatives and strategies for ICT incorporation being put in place by the Federal Government. Nevertheless, the implementation process of the ICT policy was found to be very poor resulting from numerous barriers and challenges. Recommendations are made to the government of Bayelsa State, Nigeria, which will enhance teachers' full integration of ICTs into the classroom for effective teaching and learning processes.

Keywords: ICT, ICT Policy, Challenges of ICTs Integration, Teachers' Integration in Teaching and Learning

Introduction

Several studies have shown that teachers' integration of ICT into the classroom teaching and learning process has made tremendous changes in the quantity and quality of education especially in research, teaching and learning. This has enhanced the learning process via its dynamic, engaging content, resources sharing, shared learning space, promoting collaborative learning and

the provision of real opportunities for individualised learning (Adefunke, Ayodele & Olufemi 2014; Tran & Stoilescu, 2016). In Nigeria, policymakers in the education sector have been trying to formalise an all-encompassing ICT policy as part of the educational renewal and reforms based on the educational needs of the Universal Basic Education (UBE) geared towards meeting the demands of the technology-driven economy (Adeosun 2010). Similarly, in the Nigerian context, as a strategy to realising the EFA goals via the practical application of ICT in the learning process, Nigeria's UBE policy stipulates the following among other ways to achieve the EFA goal:

- within the classroom, ICT tools will be used for creative, communicative collaborative and task-based activities during instruction in various school subjects especially mathematics, languages and sciences; as well as encourage self-discovery by learners; and
- ICT tools will be used to improve teachers' professional development as quality in education is also dependent on teacher competencies. This will be achieved through access to online journals, joining discussion forums (Federal Republic of Nigeria, 2012).

Meaning of ICT and Factors Influencing the Adoption and Integration of ICT in Schools

Information and communication technologies ICTs are various technological tools and accessories or resources used for purposes of communication and to create, download and save, store, manage and disseminate information in schools and other organizations for effective and efficient performance or output. Several factors affect the adoption and integration of ICT in schools such the values, ethos and attitudes of the school organisation, which have an important role to play in educational change with ICT. These can possibly and significantly be fundamental in shaping a culture of innovation in which teachers can safely develop their use, adoption and integration of ICT (Rajeswari & Saravanakumar 2013). Other factors influencing ICT adoption includes lack of funding, ICT training among practising teachers, motivation and assistance from school administrators and technical staff. In Nigeria, researchers have shown the role of ICT in attaining valuable education at all levels of the school system. These studies (Adebowale & Dare 2012; Ibrahim & Muhammad 2016) revealed a framework of information and communications technology (ICT) policy for education in Nigeria where ICT will serve as a key tool in the acquisition, processing and disseminating of knowledge and impacting on the quantity and quality of the teaching and learning process.

Research Question

1. How does Nigeria's ICT policy support ICT integration in the teaching and learning process in secondary schools in Bayelsa State, Nigeria?

Methodology

This research employed a qualitative design for data collection. The key informants that were involved in answering the interview and focus group discussion questions were three principal officers in the Ministry of Education and two Heads of Secondary Schools in Bayelsa State. In-depth Interviews (IDIs) and Focus Group Discussions (FGDs) (involving 20 secondary school teachers organised in three different groups) were used to explore the motives, attitudes, beliefs, values and emotions of policymakers, school administrators and secondary school-teachers toward the integration of ICT into the classroom teaching in secondary schools in Bayelsa State. The interview schedule and focus group discussions consisting of open-ended questions regarding best practices in the implementation of ICT policy in schools in Bayelsa State were used and the data were analysed using qualitative analytical known as content analysis. The IDIs and FGDs were tape recorded and transcribed verbatim after each discussion. Adequate interpretations of the participants' statements were ensured and transcripts were studied and statements that had contextual importance or connotations were extracted and used as excerpts to answer the research question.

Results

From the key informant In-depth Interviews and Focus Group Discussions, school administrators and secondary school teachers in Bayelsa State agreed the following:

1. The Nigerian National ICT Policy supported the use of technology in education. It was fascinating to know that the findings show that the majority of school administrators and secondary school teachers in Bayelsa State agreed that the ICT policy strongly supported the integration of ICTs into the teaching and learning process. However, they identified poor policy implementation complicating the efforts such as initiatives and strategies put in place by the Government for the integration of ICTs in schools:

"The policy supports the integration of ICT in teaching and learning process in theory but the policy is not implemented the way it should be done for efficient and effective ICT integration in the classroom" (School Administrator 1); "But, each State ought to key into it. Unfortunately, we in Bayelsa State, we have not properly keyed into it" (School Administrator 2).

2. The Nigerian government has initiatives for ICT incorporation into the education system. Without an exemption, the findings reveal that most school administrators and secondary school teachers agreed that the incorporation into the school system is poor due to lack of follow-up processes in addition to claim that the government has not put in place concrete plans for the sustainability and continuity of the policy:

“As I said earlier, for you to integrate, you must have the plan to produce the teachers. You must also have the plan to supply the necessary equipment not all at once but in bits so that it will not be too stressful. And nothing like that is in place.” (School Administrator 1); “Yes, but we can’t use it. You cannot just make a policy, a good policy and then you don’t act on it. If there is no action, then your policies are halfway” (School Administrator 1).

The existence of challenges affected the policy implementation process. It was very interesting to know that based on the findings, most school administrators and secondary school teachers in Bayelsa State agreed that there was no evidence to show that the ICT policies were being implemented. They strongly stressed that there are several challenges and barriers to fully implement the ICT and education policies. According to them, among these challenges are:

1. The awareness of the ICT policy was seen to be very important in the implementation process. Unfortunately, most school administrators and secondary school teachers lack the awareness of ICT and education policies which is a big challenge in the implementation and realisation of the policy objectives:

“We, the policymakers are not that even all aware as far as I’m concerned, then talk less of the classroom teachers” (School Administrator 2); “I think one of the major challenges is lack of awareness. Lack of awareness is the most important thing... So, the management itself... That lack of awareness of the teachers even the head” (School Administrator 3).

2. The lack of ICT trained teachers. Majority of participants recognised that it would have been good if the ICT policy connected to education was implemented. Regrettably, the ICT policies relating to education were not implemented due to lack of trained teachers with ICT skills. In addition, the

majority of teachers who are supposed to implement ICT policies in schools have not acquired basic ICT skills:

“ICT itself requires some basic skills. These skills have to be first acquired by teachers. And until you have your teachers who have acquired these skills in schools, then there would be no integration” (School Administrator 1); “The things are there. When you walk into some schools, you have beautiful computers set and they are not using it. First, the manpower to run the place is not there” (School Administrator 2); “Yeah, yeah. The students, they like it, they want it but we are not there to give it to them because we are like, we are not educated on this” (Focus Group Discussion Group three - Teacher six).

3. The majority of school administrators and some teachers agreed that the training of ICT technical staff has not been encouraged. They expressed their concern that the lack of trained technical staff has adversely affected the ICT policy implementation processes in the education sector. The basis of their argument was that since the government did not provide the ICT facilities, the government has not made provisions for the training of technicians:

“We have not encouraged technical skill acquisition in this state. So, that it is one of the problems. If we’re encouraging technical skills, we would have had a few computer teachers ... ICT technicians. But even before then, you need to train a trainer which has not been put in place. That’s why this technical support team is also nowhere” (School Administrator 1); “Since we don’t have the ICT and the government did not make provision for it, so there are no technicians trained to manage the ICTs” (Focus Group Discussion Group three - Teacher two).

4. In addition to underfunding is the lack of access to the limited fund for the ICT policy implementation process. Interestingly, the findings from the participants show that most school administrators and teachers do not have access to funds for financing the ICT implementation process in schools:

“But it appears we don’t have the funds to drive the implementation of those lofty ideas. So, funding is a problem. That is why I said the policy is in principle okay. But in practice, it has not gone down well.” (School Administrator 1); “Is there. The problem is the fund. And if the fund is released,

it might not get to the hands of the people that needed it” (Vice Principal).

5. Another factor was the attitude of school administrators having great influence on policy implementation processes. Without an exemption, the majority of school administrators agreed that the negative attitudes of school administrators affect the proper ICT policy implementation process as they are not doing what they are supposed to do in terms of budgeting for and releasing funds for ICT implementation:

“I did not see in any and I have participated virtually in all the budget preparation in this Ministry from ‘96 till date. We have not budgeted and succeeded in buying ICT equipment for schools, that is the naked truth. We may be shouting we are doing well, we are doing well, is not true” (School Administrator 1).

6. Majority of the participants state that government not providing ICT infrastructures in schools and its effect on the ICT policy implementation process was a major concern to school administrators as they stressed that the few ICT facilities found in secondary schools in Bayelsa State were provided by Non-Governmental Organisations and corporate agencies:

“We have not budgeted and succeeded in buying ICT equipment for schools, that is the naked truth. We may be shouting we are doing well, we are doing well, is not true” (School Administrator 1); “The little I know about is that there are a few cases and even those cases themselves in Yenagoo, some schools have ICT labs and I was able to gather MTN builds some ICT labs” (School Administrator 3); “The government as a whole, without iota of reservation, is not doing enough to provide ICT in the schools; the few ICT equipment that we are having by few selected lucky schools, were not done by the state government. It’s done by the NGOs, little coming from MTN, NDDC and what, name them” (Focus Group Discussion Group one -Teacher seven).

7. The majority of school administrators and some secondary school teachers concurred that the lack of electricity makes the implementation of ICT policy in schools difficult. They seemed to be unhappy, stating that even in the few schools that have ICT facilities, there is no electricity to operate the computers:

“Yes, no power in almost all rural schools. Even with the ones in the urban centre, how are they been able to cope? They need funding” (School Administrator 1); “And like, in my own case is the finance to buy fuel for the generator because the system is already there. The money to buy fuel to power the generator is my major challenge” (Focus Group Discussion Group one - Teacher five).

8. Similarly, majority school administrators and teachers were in accord that poor internet connectivity affects the successful implementation of policies relating to the integration of ICT in schools: they stressed that it takes a long time to download information from the internet:

“So, you find that we are still a long way from saying we are fully integrated. Even the schools with the facilities, they have not been able to pay for the airtime. So, you may find a Visat Dish in a school, but it is dormant” (School Administrator 1); “you ask about networks, internet? When it expires you can’t even subscribe even if you have the money. We complained last year, January, we called and called. It is yearly, we called” (Principal); “The internet, sometimes when you are loading or if you’re assessing the ICT device, and you find it takes most time before you can actually download, is just those are constraints which we were having” (Focus Group Discussion Group two -Teacher one).

Discussion of findings

ICTs have become a requisite or an integral part of modern Nigeria, where culture, for instance, has been adjusted to meet the demands of the information age. This rapid adjustment in the culture which includes technological, political, social, economic and educational transformation is due to the universal nature of ICTs increasing the demand for computer education in Nigeria. Hence, to combine the education system with the potentials of technology, as stated in Section 2.9.1, Nigeria formulated National Information and Communication Technology policies to serve as the basis for the integration of ICTs into all facets of the society (Adebowale & Dare 2012; Player-Koro, 2012). For instance, Sections 6 and 7 of Nigeria’s National ICT Policy 2012 supported the use of technology in education.

Section 6, objective XIV of the “Nigeria’s National ICT Policy 2012” suggested ways of invigorating the use of ICT to support various programmes

and sectors that contribute to Nigeria's socio-economic development which include the education sector is a good support to the integration of technology in education. Similarly, objectives I and II of Section 7.4.2 of the policy which relates to human capacity development stressed how to integrate ICT into the national education curriculum; and promote the culture of lifelong learning respectively. To actualise these objectives for human capacity development, several strategies were formulated and the ones that supported the integration of ICT in education include the following strategies:

- Facilitate the establishment of globally competitive institutions in the field of ICT;
- Introduce mandatory training and appropriate courses for ICT at all tiers of education;
- Train and retrain teachers and facilitators at all levels to enhance their ICT competence;
- Promote ICT awareness and proficiency in mass education and non-formal education with an emphasis on children, youth, women, and the physically challenged; and
- Promote the development of instructional materials in electronic format.

In addition, while addressing universal access and services of ICT in Section 7.5, the policy, stipulated in strategy 7.5.3 (ii) that the Government will utilise existing infrastructures such as schools and libraries to extend universal access and services of ICT. Also, Strategy 7.8.3 (v), while addressing youths as a critical catalyst in Nigeria's socioeconomic development plans, the policy stated that Government will promote the incorporation of ICT into the education curriculum at all levels. These also are good strategies supporting the use of technology in the classroom. In a similar document, the National Policy on Education 2013 of the Federal Government of Nigeria recognised the importance of ICTs and their role in the development of the contemporary society. The policy made the integration of ICTs in the education system one of its main objectives. Again, to realise this objective, the document outlined ways in which the Federal Government of Nigeria will provide basic infrastructures, making computer education pre-vocational and vocational. This includes training the required workforce for the integration of ICTs into the educational system. In line with that objective, Strategy xi of the policy stressed a restructuring of the education system at all levels (primary, secondary and tertiary levels of education) with the view to developing relevant curricula for primary, secondary and tertiary institutions and allocating appropriate fund for an ICT development in education. The

document also stressed that educational institutions that will effectively respond to the challenges and the imagined impact of the information age will also be established (Adebowale & Dare 2012; FRN 2013). These two documents supported the integration of ICTs into the education system.

Importantly, the Nigerian Government then set up several initiatives to implement these several strategies of integrating ICT into the education system. To achieve the above objectives of ICT integration into secondary school education system, the Federal Government of Nigeria went into collaborations with Non-Governmental Organisations (NGOs) and private individuals to put in place several initiatives to incorporate ICTs into the secondary school education system. For example, as part of its mandate to make ICTs available for education (see Section 2.8.1), the National Information Technology Development Agency (NITDA) in collaboration with the National Communication Commission (NCC) and private individuals established the following:

- School-Net Nigeria: An affiliate of the Non-Profit Organisation SchoolNet Africa, was established in 2001 and tasked with the responsibility of addressing issues relating to the effective and sustainable deployment of ICTs in teaching and learning processes in Nigerian Primary and Secondary Schools. SchoolNet Nigeria had the financial support of several government ministries, private individuals, NGOs and the Education Trust Fund (ETF);
- The computer-in-schools project was launched in 2002: This project aimed to develop computer and technology literacy in secondary schools;
- Mobile Internet Units (MIUs): The MIUs buses were established in 2003 and equipped with ICT facilities and connected to the Internet via Very Small Aperture Terminal (VSAT) Internet Provider. The buses were equipped with a small generator to ensure regular power supply. These MIUs were to serve as mobile training, cyber-centres and telecentres for providing ICT education and internet awareness to rural and remote communities in Nigeria;
- Universal Service Provision Fund (USPF): A fund established in 2003 was aimed to promote widespread availability, and usage, of network services, especially in under-served areas of Nigeria. This was done using the school access programme; and
- One-Laptop-Per-Child (OLPC) project, in collaboration with Nigerian Software Developers was launched in 2006: This initiative intended to integrate local curriculum content in secondary schools (Adebowale & Dare 20102; FRN 2012; Mathew, Joro & Manasseh, 2015).

It becomes imperative to state that Nigeria's ICT and Education Policies strongly supported the integration of ICTs into the teaching and learning processes. However, poor policy implementation process impedes governments efforts, initiatives and strategies introduced for the proper integration of ICTs in secondary schools in Nigeria. In fact, strategic thinking, intervention, consistency and proper coordination in ICT related activities in schools are necessary to achieve the required effect of ICT on education. This undoubtedly is lacking in the ICT policy implementation processes in secondary schools in Bayelsa State, Nigeria, which has resulted in the Federal Government's policy implementation interventions being ineffectively coordinated. In addition, the ICT policy implementation processes are more demanding than the conceptualisation, articulation and formulation processes, as some definite assumptions made at the articulation stage may be in contrast to stark realities of putting the policy into practice. For example, lack of funding, teachers' ICT competency, availability of ICT resources and teachers' attitude towards technology among others are also hindrances to effective integration of ICTs in secondary schools. Consequently, the incorporation of these policies into the secondary school curriculum has not yet taken full effect due to these deficiencies and drawbacks in the policy (Adebowale & Dare 2012; Adefunke, Ayodele & Olufemi 2014).

Challenges Affecting the Policy Implementation Processes: Apparently, there was no evidence to show that the ICT policies were not being implemented due to several challenges and barriers among which are:

- Lack of regular policy evaluation: The incessant changes and scarcity of educational and ICT technocrats at all levels of government results to the lack of regular evaluation of these policies and strategies for implementation.
- Lack of ICT policy awareness: The lack of concrete plans to create ICT awareness in schools is among several factors challenging the full implementation of ICT and education policies.
- Lack of ICT trained personnel: It is unfortunate that ICT policies related to education were not implemented due to lack of trained teachers with ICT skills and trained ICT technical personnel.
- Insufficient funding and poor budgetary allocation for ICT facilities constituted another set of challenges in the policy implementation processes. The insufficient fund released from the government to teachers tends to stall and defeat the implementation processes of the ICT policies relating to education. Additionally, poor government budgetary allocation alongside negative attitude of school

administrators towards the provision of ICT facilities in and outside of school inhibits ICT policy implementation.

- The absence of the necessary telecommunication infrastructure in secondary schools such as connectivity to the World Wide Web or the Internet due to the high cost of installation and maintenance negatively affects the ICT policy implementation process in schools. Even where they are available in the private sector, the connectivity speed is very low.
- Lack of electricity: The poor, inconsistent and absent supply of electricity, in addition to the unaffordability of generators by public secondary schools greatly contributed to poor implementation of the ICT policies in their schools, as teachers seemed to be unhappy, stating that even in the few schools where there are limited ICT facilities, there is no electricity to operate the computers.

Conclusion

In conclusion, there are numerous ICTs policies, initiatives and strategies for the effective and efficient integration of ICTs in secondary schools for teaching and learning process in theory (on paper), but in reality and practice ICTs facilities were not fully implemented or not implemented at all in secondary schools in Bayelsa State due to several challenges. These challenges include: insufficient funding and poor budgetary allocation for ICT facilities, lack of ICT trained personnel and technical staff, the absence of the necessary telecommunication infrastructure in secondary schools such as connectivity to the World Wide Web or the Internet due to the high cost of installation and maintenance, lack of ICT policy awareness, lack of electricity among others. However, for full integration of ICTs in secondary schools in Bayelsa State to be effective, there is need for combined effort in the provision, sustainability and maintenance of ICT facilities by the government, non-governmental organizations, individual philanthropists, school administrators and teachers for effective teaching and learning process.

Recommendation

From the findings of this study, it is apparently clear that teachers' integration of ICT into the teaching and learning processes in secondary schools in Bayelsa State, Nigeria, is very important. Consequently, there is the need for teachers to adopt and use technology in their teaching in order to enhance students' academic performance. For secondary school teachers to do this effectively, the study recommends that the Government of Bayelsa State, Nigeria should:

1. Review the national ICT policy in order to meet the educational needs of Bayelsa State;
2. Ensure that teachers' training and retraining in terms of ICT pedagogical skills is the starting point for the successful implementation of the ICT policy and related strategies. This is because teachers are predominantly responsible for implementing ICTs in the classroom;
3. Ensure that school administrators and teachers in Bayelsa State are consistent in their application of ICT policies in education by demonstrating good practice in schools. This should be achieved through setting up committees in various local government areas to monitor the school administrators and teachers.

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