

Exploring Nigerian Teachers' ICT Use in Secondary Schools

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Abstract: Teachers' ICT use in Akwa Ibom State, Nigeria was the main focus of this study. The study employed a quantitative descriptive research design and interviews were then conducted to obtain qualitative data from selected participants. The findings suggest that the extent of teachers' ICT use was not very encouraging. This study also found that while some teachers reported using ICT in classroom activities, others reported the lack of access to ICT facilities, while others did not want to use ICT.

Keywords: ICT use, teachers' opinion, Akwa Ibom State.

1. Introduction

ICT plays a crucial role in the way that organisation and society function (Afshari, Bakar, Luan, Samah & Fooi, 2009). The future of any nation's economic growth and its citizens' prosperity is discovered to be strongly correlated with ICT integration in every aspect of life (Anderson, 2010). Teachers play a big role in ensuring the success of ICT integration especially in the learning environment. It is encouraging that most teachers reported ICT to be very useful and made teaching and learning easy (Tella, Tella, Toyobo, Adika, & Adeyinka, 2007). It could be argued that based on history, digital technologies have tended to promise a great deal in formal education but have delivered far less (Player-Koro, 2012). This study was conducted to explore the extent of ICT use in the classrooms among teachers at Akwa Ibom state in Nigeria. It also sought to obtain further understanding of their ICT use.

2. Objectives of the Study

Based on the aforesaid objectives, the following two research questions were formulated:

1. What is the extent of teachers' ICT use for teaching and learning?
2. What is the secondary school teachers' opinion on their use of ICT?

3. Methodology

Questionnaires were used to collect data from secondary school teachers in Akwa Ibom State. The accessible population for this study were all teachers (n= 6927) at 232 public secondary schools. Selection of the teachers was done via simple random sampling and the sample size of 257 teachers was selected from the three senatorial districts of the state, 386 questionnaires were distributed to account for uncooperative subjects. A total of 327 questionnaires were returned resulting in a high response rate (84.7%). A semi-structured interview was developed in order to obtain more exhaustive aspect in relation to the questionnaire information collected. The interviews are particularly, expected to furnish some clarifications for attitudes of the teachers, their use of ICT, and professional development. Ten teachers were asked open ended questions to solicit their opinion about other conditions that they think could facilitate their use of ICT for teaching and learning.

4. Results and Findings

4.1 ICT Use by Teachers

The participants in this study comprised 52.2% males and 48.0 % females. Teacher's age varied from 20 to 60 years (M= 35.83, S.D. = 8.08), and the mean score for years of teaching experience was 7.43, (S.D. 6.80). Approximately 14.4% of the participants held a National Certificate of Education (NCE), 41.0% had a bachelor's degree, and 41.3% held a master's degree

and only 3.4% had a doctoral degree. Majority of the participants (70%) reported that they had computer training and had undergone more than two training sessions in basic computer operations—Microsoft Word and Internet surfing.

To explore the extent of teachers' ICT use for teaching and learning, they were asked to rate the extent and frequency of ICT use in their teaching and learning process. The items measured supportive and class use of ICT (Table 1). Nearly half of the respondents sometimes used ICT in the teaching and learning processes (40.1%, $M = 2.72$, $S.D. = 1.31$), while less than one third of the teachers used ICT to show examples such as pictures, animation, audio to enhance students' learning (25.4%, $M = 2.82$, $S.D. = 1.44$). Less than half of the respondents responded that they sometimes used ICT to design instructional materials that can attract student's interest (30.0%, $M = 2.59$, $S.D. = 1.36$). Less than a third of the teachers also used ICT to search for teaching materials from the Internet (26.0%, $M = 2.86$, $S.D. = 1.35$). On this item, a majority of the teachers used ICT to develop educational software for their lessons (30.3%, $M = 2.78$, $S.D. = 1.32$), while less than one third made use of ICT as a support for the teaching and learning process in the class (22.9%, $M = 2.99$, $S.D. = 1.44$).

Almost equal percentages of the teachers reported that they never (28.4%) and sometimes (28.7%) used ICT to provide detailed explanation such as visual aids during the teaching and learning process ($M = 2.59$, $S.D. = 1.29$). More than one third never used ICT to facilitate various pedagogical approaches such as collaborative learning and demonstration (34.3%, $M = 2.44$, $S.D. = 1.32$). Also, almost an equal percentage had never used ICT to facilitate use of relevant Internet resources during the learning and teaching process, as well as to conduct classroom activities (35.8%, $M = 2.34$, $S.D. = 1.30$). About one third had never used ICT to create a conducive learning environment such as music, and educational flash to motivate students to learn (32.1%, $M = 2.58$, $S.D. = 1.42$), and an almost equal response was received on teachers who reported never developing teaching materials such as presentation slides, videos, for their class using ICT (31.2%, $M = 2.54$, $S.D. = 1.33$), and almost one third had never used ICT to prepare homework for students (33.3%, $M = 2.54$, $S.D. = .38$).

The results as shown on Table 1 also indicated that the item "I use ICT as a support for teaching and learning process in my class" scored the highest mean of 2.99 ($S.D. = 1.44$), while two items with the lowest mean score were "I used ICT to facilitate use of relevant Internet resources during the learning and teaching process" and "I use ICT in my class to conduct classroom activities" with a mean value of 2.34 ($S.D. = 1.30$). In summary, the descriptive statistics suggested that secondary school teachers were not using ICT in teaching and learning process as it should be. As shown in Table 1, the responses were split between Sometimes and Never with the majority in these frequencies with Rarely, Often and Always responses having the lower scores. The overall mean score of 2.64 ($SD = 0.81$) therefore indicates that ICT use is not widespread in most schools. The analysis of the results also indicated that ICT use by teachers across schools were not uniformed as most teachers reported use and some did not use ICT in the frequency and extent of use for their teaching and learning even as some schools reported having ICT facilities.

Next an interpretative qualitative approach was employed to explore the secondary school teachers' opinion on their use of ICT. In total, 10 respondents (five females and five males) were interviewed, identified, and assigned numbers 1 to 10. All participants hold a master's degree with an average of 10 years teaching experience between them. Two themes emerged from the analyses: (a) teachers' ICT Use (b) ICT implementation.

Table 1: Descriptive Statistics of ICT Use

Item	ICT Use Scale	% (f)					Mean	SD
		N	R	S	O	A		
1.	I use ICT in the teaching and learning process.	26.0 (85)	11.6 (38)	40.0 (131)	8.6 (28)	13.8 (45)	2.72	1.31
2.	I use ICT to provide detailed explanation (e.g. visual aids) during the teaching and Learning process.	28.4 (93)	19.0 (62)	28.7 (94)	12.5 (41)	11.3 (37)	2.59	1.29
3.	I use ICT to facilitate various pedagogical approaches (e.g. Collaborative learning, demonstration etc).	34.3 (112)	19.0 (62)	24.2 (79)	13.5 (44)	9.2 (30)	2.44	1.32
4.	I use ICT to show examples (e.g. pictures animation, audio) to enhance students' learning.	26.3 (86)	16.5 (54)	25.4 (83)	12.5 (41)	19.3 (63)	2.82	1.44

5.	I use ICT to facilitate use of relevant Internet resources during the learning and teaching process.	35.8 (117)	23.2 (76)	21.1 (69)	10.7 (35)	9.2 (30)	2.34	1.30
6.	I use ICT to create a conducive learning environment (e.g. music, educational flash, etc) to motivate students to learn.	32.1 (105)	19.0 (62)	23.5 (77)	9.5 (31)	15.9 (52)	2.58	1.42
7.	I use ICT to prepare my lesson plan.	29.1 (95)	17.7 (58)	27.8 (91)	11.9 (39)	13.5 (44)	2.62	1.36
8.	I use ICT to design instructional materials that can attract my students' interest.	28.1 (93)	18.3 (60)	30.0 (98)	13.8 (44)	9.8 (32)	2.59	1.29
9.	I use ICT as support for the teaching and learning process in my class.	24.5 (80)	15.9 (52)	22.9 (75)	16.8 (70)	19.9 (54)	2.99	1.44
10.	I use ICT in my class to conduct classroom activities.	35.8 (117)	23.2 (70)	21.1 (69)	10.7 (35)	9.2 (30)	2.34	1.30
11.	I develop teaching materials (e.g. presentation slides, videos, etc.) for my class using ICT.	31.2 (102)	18.0 (59)	27.5 (90)	12.5 (41)	10.8 (35)	2.54	1.33
12.	I use ICT to search for teaching materials from the internet.	22.9 (75)	16.5 (54)	26.0 (85)	20.5 (67)	14.1 (46)	2.86	1.35
13.	I use ICT to prepare homework for my students.	33.3 (109)	17.1 (56)	25.7 (84)	10.4 (34)	13.5 (44)	2.54	1.38
14.	I use ICT for developing educational software for my lessons.	23.5 (77)	17.1 (56)	30.3 (99)	15.9 (52)	13.1 (43)	2.78	1.32
15.	I use ICT to enhance my teaching efficiency.	21.7 (71)	22.9 (75)	21.4 (70)	16.5 (54)	17.4 (57)	2.85	1.39
Overall							2.64	.81

Never, N; Rarely, R; Sometimes, S; Often, O; Always, A. SD: Standard Deviation

4.2 ICT Use by Teachers for Teaching and Learning

The most often cited reason for the participants' lack of ICT use was that it was not available in schools and where it was available, it was not adequate. The teachers expressed the view that if they had access to ICT in their schools, there was no reason not to use it as explained by Teacher 9:

ICT has come to stay but I am yet to feel the impact, I only hear that government has such programmes only on the news bulletins, there is nothing on ground visibly so to say, there is no reason not to use ICT in my class if only I have. I am eager to use ICT in teaching, my students know better than I do and this is challenge to me.

Teacher 5 from one of the schools with a computer studio acknowledged that basic school facilities are not adequate with the ever increasing number of student enrolment every term.

I have not used the computer studio before for my class, how will I manage the students in such a small space? The school needs more space in the classrooms, in-fact more classroom blocks, suddenly classrooms have shrunk with the increase in student population which will make ICT use in class near impossible task.

Other teachers shared the same views with Teacher 5 when questioned on their extent of ICT use. One teacher believed that classroom space affected her use of ICT for teaching and learning as she observed:

I cannot see how ICT use will be possible in the present situation in schools (...) It is so pack full that I do not even have the leg room to walk around my class (...). I am at a spot till I finish my lesson.... where is the computer going to be placed?

Further, the teachers remarked that even when their school had a computer laboratory class sizes was a challenge. They commented that even when they had to divide the class into groups it was difficult to attend to all the students. The entire day would be spent in the laboratory to ensure that all the students could have the opportunity to use the computer which was not possible since other classes had to use the computers too. The classes are too large and cannot be managed in the computer laboratory. This also resulted in damages to the facilities as the computers often broke down and the repairs took a long time due to bureaucratic requirements which meant that student and teachers could have limited access to the laboratories which was either once or twice during the whole term, as explained by Teacher 6:

Let us, I mean government take this ICT thing seriously but the basic things have to be in place, new buildings and expansion first before all this talk about ICT use, I support the use of ICT but where can this function, I want to use it (...) But in the present class size I have serious limitations.

The teachers were also asked to be specific on how ICT was applied in the teaching and learning process. Teachers reported that they used ICT mainly for Microsoft Word processing in preparing lesson notes and Microsoft Excel Spreadsheet for examination scores. The Internet was

mainly used for sourcing lesson preparation materials and for administrative purposes. With regards to ICT training, two teachers responded that the ICT training was good to attend, as Teacher 8 commented:

At least it assisted me in my private usage (...) but I feel it was of no importance since I will not make use of it in the context of teaching and learning.

All participants responded that they had to attend because it was part of their promotion requirement. However, they were not able to impact the knowledge acquired from this training in the classroom as Teacher 10 explained:

I just sit in for those ICT compliant workshops, (...) at first start it was exciting to attend those sessions, I lost interest, (...) I have attended like five and at the end of it I do not get to put into practice what I learnt.

Teacher 1, who is a vice principal and is also in-charge of the school academic records and supervision of teacher's daily duties, commented:

I keep those updates for promotional exams, last year they (promotion committee at the Ministry) ask if I am even computer literate, I presented all my participation certificates, that is the benefit I get from the training. I encourage my teachers to attend those training workshops even if they can use the knowledge now it will assist them in their professional growth.

Almost all of the teachers acknowledged the value of ICT. Seven out of the ten teachers interviewed, considered ICT to be of utmost importance and as having great potential for teaching and learning. Teacher 6 and Teacher 4 commented:

Teacher 6: ICT is a means of getting information and material (...) there is so much one can do with the Internet. I am not motivated, I feel discouragement, sometimes the interest is not there. I feel I have not done my student any good.

Teacher 4: the Internet has become the way of life for me, I depend on the Internet for almost any information, I had to save money to buy a laptop and I buy my monthly internet subscription so I can read the newspapers online, read books, and be daily informed, my class lessons are kept up to date which I supplement with the government prescribe textbooks, but you see this is just so inadequate, I should be doing this in school not at home.

When probed to provide an explanation on what he meant by "doing this in school", he responded that "having ICT access in school as well" and his laptop access would be for back up. Teacher 1 further remarked:

ICT offers access to uncountable information just like that, I am better informed about the world and people, I even had to Google about Malaysia when you mentioned to me about your programme of study and University.

The analysis of the interview revealed that very few teachers used ICT in their teaching. The teachers' responses around this theme suggested that they saw the importance of ICT in teaching and learning and would do the extra to use ICT within the constraining conditions they experienced. All teachers agreed that ICT has a place in teaching but the major constraints reported by them were the lack of ICT facilities and inadequate funding for ICT by the relevant authorities. These constraints inhibited their use of ICT.

4.3 ICT Implementation by Teachers

It is believed that government policies are almost never followed through completely by politicians. Teachers responded that they needed ICT facilities and would use them if available and accessible. While they acknowledged the need for proper training programmes to use ICT they doubted that it was possible due to the current economic and political situation in the state. As such, they considered the ICT policy as political statements by politicians seeking to score points, Teacher 9 commented:

I doubt if the project (ICT implementation) will be taken to the end, the usual political situation of lack of continuity of previous administrative projects may just set in, some other administrator will not see the need to continue with this ICT thing, it's not right the way they (policy makers) go about education.

Teacher 4 gave a similar response:

Our political office holders have a dislike to continue their predecessor's project, everyone wants to start something new and it gets abandoned, my opinion is the lack of electricity, the moment there is steady electricity supply everything will fall into place.

Teacher 5 made a similar justification for the lack of constant electricity supply to schools which were imperative for ICT use:

All this are good, but where is the electricity for all this to take place? (...) there is still a long way to go (...) let's have steady electricity power supply first. It is very worrisome for me to understand what is going on in the Ministry concerning ICT use. ICT is a global thing now, so many countries have gone beyond where we are today, it is sad (...) I must be frank with you.

Two major sub-themes emerged from this theme of ICT implementation, which was work load and incentives. The teachers reported that they were overloaded with class work and that it will be encouraging to have incentives and awards to motivate them to use ICT. The teachers felt that giving out laptops would be a good start. They also reported that the laptops would be purposeful in encouraging them to work hard for the school particularly for the students. They acknowledged that the laptops would enable them to prepare their lesson plans easily, conduct their lessons, and prepare proper instructional materials. All the teachers were in support of the laptop distribution as noted by Teacher 3:

My teaching will be different if I owned a laptop to assist me prepare my notes of lesson, I argue government to give teachers laptops, we can do a lot from the Internet, get enough and current materials for our lessons, it will make this teaching work easier, so that some points that are difficult to explain to the students are not so abstract. It saves a lot of time in explanation of the lesson.

The second sub theme was commitment and encouragement from school heads. The teachers' opinions were analysed on this sub theme that emerged around the facilitating conditions. This was based on the commitment and encouragement for the teachers to use ICT. The teachers reported that they are strongly committed to using ICT but that some school heads did not show a strong influence on them. They believed that this could be due to a lack of interest among the school leaders. In general, the teachers believed that age could be a factor on their school leader's interest to encourage the use of ICT. One teacher remarked:

My principal thinks this ICT use is good but does not give the encouragement to us teachers, (...) maybe is the age, (...) he will soon retire and does not see the need for it as an old teacher.

When probed further about the age concern among some school leaders, Teacher 6 said that it was merely the "fear to move over" which was possibly the fear of not knowing what to do in front of the students. Some of the teachers expressed concern for the difficulties they experienced in getting support from their school heads. It was noted that the school principals had a part to play in ICT use in their various schools. However, those principals who encouraged ICT use by teachers made efforts to ensure that the ICT facilities were in working conditions. While some other principals were supportive they did not make provisions for appropriate ICT facilities. Thus, the teachers in such schools viewed such inaction to push for those facilities from the government, as lack of support from the school administration. Teachers also commented that for them to successfully use ICT for teaching there was a need for examinations to be conducted uniformly online whereby all school subjects from core to those for examination such as English and Mathematics are administered simultaneously in all schools in the state. They believed that this approach would force school administrators to be committed and supportive of ICT use. This theme provided insights into teachers' opinion on ICT implementation, first on policies that affected the use of ICT in their teaching and second, their commitment to use ICT. It confirmed that when these factors were in place, teachers would integrate ICT in their classrooms.

Almost all the teachers noted that they were happy that they had the opportunity to participate in the study. However, they expressed a concern that although the findings of the study which they felt could cause a change to the school system, policy makers might not read these outcomes. As mentioned by Teacher 8:

Since you say the result of this study will be made known to us I hope the people at the top (policy makers and heads of education boards) will read this too (...), something urgent and drastic has to happen before it is too late for us teachers maybe even worse for these children we have been entrusted with.

5. Discussion & Conclusion

ICT use by Akwa Ibom State teachers recorded mix responses. A number of the teachers also reported that they had never used ICT in class to conduct classroom activities. Their extent of ICT use was evident in their Internet use, as teachers responded to using it often to search for teaching materials from the Internet. The findings in this study are similar to the study by Tezci (2010) which also reflected that the respondents were highly knowledgeable only in certain software applications such as word processing and Internet browsing.

This findings from this study have been observed to differ from most studies conducted in other parts of the world (Koo, 2008), with regards to extent and percentages of teacher ICT use for teaching and learning. The findings from similar studies revealed that 39% of Latvian teachers made use of ICT compared with 96% of UK teachers (Korte & Husing, 2007). Such findings contrasted with the present study where 35% of the teachers had never used ICT in their classrooms. The teacher participants highlighted the benefits of ICT use through the interviews. They seemed to have supported ICT use and endorsed its advantages over the “talk and chalk” method of teaching. They considered ICT as offering a great opportunity for transfer of knowledge and networking with colleagues and did not feel threatened by the use of ICT use in the classroom as a device that could replace their roles as teachers. The present findings suggested that the Akwa Ibom State teachers’ low extent of ICT use is somehow related to the (a) availability of ICT tools, (b) access to ICT material for classroom use, and (c) knowledge and skill towards ICT use. With regards to these factors, this study found that while some teachers reported using ICT in classroom activities, others reported the lack of access to ICT facilities, while others did not want to use ICT. The data revealed that ICT facilities were available in most schools. However, such facilities although available, were inadequate and limited resulting in many teachers not having access to ICT facilities at all. Nevertheless, many others did not want to use the facilities.

To conclude, although teachers support the use of ICT for teaching and learning, the extent of use was discouraging. The teachers also lack adequate knowledge and skills, sufficient resources in hardware, software and technical support. While the lack of ICT infrastructure may not apply to most developed countries, it remains a major issue in some developing countries such as Nigeria.

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