

IMPACT OF THE IMPLEMENTATION OF EDUCATION POLICY FRAMEWORK ON COMPUTER EDUCATION OF SENIOR SECONDARY SCHOOLS IN BIU EDUCATION ZONE, BORNO STATE

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Abstract

This study assessed the impact of the Implementation of Policy Framework on Computer Education in Senior Secondary Schools in Biu Education Zone, Borno state. Four objectives were formulated to guide the study, four research questions were answered. The study used descriptive survey research design. The targeted population of the study comprised of all the thirty two (32) secondary Schools in Biu Education Zone which was 602 teachers as at time of this study. Out of these numbers, three hundred (300) teachers from the Education zone offering computer studies were randomly selected from list of secondary schools in the zone. The questionnaire and checklist were developed by the researchers based on the four (4) research questions. The instrument was subjected to face and content validation by experts in educational measurement and evaluation and educational technology Borno state university, and the instrument yielded a coefficient value of 0.87 using Chronbach's Alpha value. Data collected were analyzed using descriptive statistics of frequency and percentages to answer research questions. Results of the study revealed that the implementation of information communication technology in senior secondary schools in Biu education zone was not effective due to the following reasons: lack of adequate training and retraining of teachers in computer education; lack of adequate teachers in computer education; lack of adequate computer facilities among other challenges. Based on these findings, the following recommendations were made: government at all levels should strategize to improve ICT equipment in senior secondary schools; the government in collaboration with donor agencies should provide sufficient ICT equipment for effective teaching and learning; budgetary provision should be made to ministries of education and schools to enable them develop teachers' capacity on the use of computers and other ICT facilities; government should also provide schools with computer networking so as to promote e-learning in schools.

Keywords: Implementation, policy, framework, computer education

Introduction

The importance of secondary education to individuals and society cannot be overemphasized. Apart from serving as the link between primary and tertiary education, it provides opportunity for the child to acquire additional knowledge, skills and traits beyond the primary level. However, secondary school education help students to define their career objectives and make them capable of deciding on what they want in life and progress in their fields of interest.

An attempt to popularize computer education in Nigeria evolved in 1988 when the Nigerian Federal Government launched the National Policy on Computer Education at primary, secondary and tertiary levels with the aim of equipping the individual or students with thorough understanding of the concept of computers in order to fit into the next century (Okebukola, 2004). ICT has been considered a priority in global education and Nigeria is not left out. The Federal government of Nigeria in the National Policy on Education (FRN, Revised 2014) recognizes ICT as a product of technological change and as an innovation in education. It is in this view that Computer Education was introduced as an integral part of ICT in the Nigerian educational system. The main purpose was for acquisition of computer literacy and computer skills that are needed in all facets of human life in the 21st century (FRN Revised, 2014)

Subsequently, to ensure complete implementation of the National Computer Policy, the state governments throughout Nigeria embraced the policy of the Federal Government by introducing computer education and literacy into secondary schools in 1997 (Bada *et al.*, 2009), this was followed by the inauguration of the National Committee on Computer Education the same year (Ogwo, Onwe and Maidoh, 2015). The functions of the committee include "planning for a dynamic policy in computer education and literacy in Nigeria as well as devising clear strategies and terminologies to be used by the federal and state governments in introducing computer education" (FRN Revised, 2014).

In Nigeria, a formidable obstacle to the use of information and communication technology is infrastructural deficiencies. Computer equipment was made to function with other infrastructures such as electricity under controlled condition. According to Aniebonan, (2008; cited by Eze and Ijeoma, 2014), observed that, lack of computer facilities and teachers have created a very big gap in the effort to bridge digital divide in Nigerian academic environment.

Haruna (2022) observes that lack of adequate ICT infrastructure has hampered provision of efficient and affordable ICT services in the country. She further suggested that emphasis should be placed on provision of software development. In another study, Adeyinka (2023) discovered that insufficient number of computers and peripheral devices inhibit deployment of ICT by teachers.

Sola (2022) stated that in any educational system, the level of available resources place a restriction on the need to which any new subject can be introduced into the school curriculum. In the same study, Sola (2022) also, observed that 75% of teachers (respondents) acknowledged the non-availability of computer infrastructure in their schools.

This implies that availability both in quality and quantity of physical infrastructures and facilities in adequate supply are crucial for the achievement and implementation of computer education, hence there is need for proper planning of these resources because of its direct bearing with learning outcome.

Teachers preparedness in this context means teachers level of qualification and competency. Teachers are indispensable to successful computer education. And successful implementation of computer education can only be assured through teachers who have acquired necessary knowledge and skills. That is, the teacher needed to become sufficiently competent to impact

on students in using computers. Most teachers leave teacher training institutions with limited knowledge of technology can be effectively used in their professional practice, (Abdullahi, 2021). Applying technology effectively should be the focus point of what teachers at all levels of education should be able to do in a practical teaching. There is substantial evidence that, if used appropriately for specific purposes in specific contexts, technology can be an effective tool in supporting teaching and learning According to a study by Bukaliya and Mubika (2011), the qualifications of majority of the teachers are far from being satisfactory due to lack of exposure in college curriculum that does not cater for ICT training. The teachers have poor practical skills in ICT usage since majority of them could not even use software in computer for the delivery of their lesson indications that the teachers lack the necessary skills and knowledge of computer usage.

The benefits derivable from the application of ICT in the education sectors can only be maximized when the potential users are competent in the usage of the new technology. Studies have shown that is correlation between ICT skills and its application for teaching and learning (Umoru, 2023).The Federal Government of Nigerian, in the National Policy on Education (FRN, 2014) recognizes the prominent role of ICT in the modern world, and has integrated ICT into education in Nigeria. To actualize this goal, the documents stated that the government will provide basic infrastructure and training at the primary school. At the junior secondary school, computer education has been made a pre-vocational elective, and is a vocational elective at the senior secondary school. It is also the intention of government to provide necessary infrastructure and training for the integration of ICT in the secondary school system.

Also, UNESCO (2019) revealed that there was limited use of ICT in pedagogical support with very minimal technical support to the teachers. The study further indicated that there was inadequate ICT software both for general teaching and specific subject, hence low level of ICT adoption in teaching. Therefore, educational systems as a matter of urgent need to wholly embrace ICT se to indicate integration of ICT in teaching and learning reality.

Research studies have indicated that there is correlation between ICT skills and its application for teaching and learning. Also Umoru (2023) who reported that despite the apparent benefits of the use of ICT for educational purpose, still show that in many cases the learning potential of ICT is deprived as many teachers and students are still not fully ICT literate. It has been observed that after teachers had attended professional development course in ICT, they still do not know how to use ICT in their classrooms; instead they just know how to run a computer and set up a (Jibrin, 2022).

Statement of the Problem

The pursuit of computer education has become essential for any nation aiming to keep pace with the rapid social, economic, scientific, and technological advancements of the third millennium. As a key driver of national development and globalization, Information and Communication Technology (ICT) plays a vital role in addressing societal challenges. In recognition of this, the Nigerian government, through the National Council of Education, proposed the introduction of ICT or computer studies into the secondary school system in 1987.

The National Committee on Computer Education (NCCE) report of 1988 envisioned that Nigeria would become a computer-literate society by the mid-1990s. However, decades after this policy pronouncement, the use and teaching of ICT in secondary schools remain limited and unsatisfactory. In the Biu Education Zone of Borno State, for instance, many schools lack well-equipped computer laboratories, and teachers continue to rely on traditional lecture methods. This gap in ICT education may explain why many secondary school graduates struggle to use computers in their personal and professional lives.

Objectives of the Study

The following objectives are formulated to guide the study:

1. To determine the availability and adequacy of facilities for the implementation of computer education Policy framework in Senior Secondary Schools in Biu Education Zone, Borno State.
2. To examine teachers' preparedness for the implementation of computer education Policy framework in Senior Secondary Schools in Biu Education Zone, Borno State.
3. To examine the level of the implementation of the policy of computer usage on senior secondary school in Biu Education Zone, Borno State.
4. To determine the Impact of Computer Usage on the implementation of computer education Policy framework in Senior Secondary Schools in Biu Education Zone, Borno State.

Research Questions

Based on the objectives of the study, the following research questions are raised:

1. What is level of the availability and adequacy computer facilities for the implementation of Computer policy framework in Senior Secondary Schools in Biu Education Zone, Borno State?
2. What is the extent of teacher's preparedness in the implementation of ICT education in Senior Secondary Schools in Biu Education Zone, Borno State?
3. What is the level of implementation of the policy on computer usage on senior secondary schools in Biu Education Zone, Borno State?
4. What is the Impact of Computer Usage on the implementation of computer education Policy framework in Senior Secondary Schools in Biu Education Zone, Borno State?

Methodology

The study employed a descriptive survey research design to assess the implementation of the computer education policy framework in senior secondary schools of the Biu Education Zone, Borno State.

The target population comprised all 32 public senior secondary schools in the Biu Education Zone. Teachers from 15 public schools offering computer studies were randomly selected for the study. At the time of the study, the total teacher population was 602 across these 32 schools. Stratified random sampling was used to select the participants, which involves dividing the population into homogeneous groups, each containing subjects with similar characteristics. Principals and teachers from these sampled schools served as respondents. From the 602

teachers, 300 were randomly selected as the subjects for the study. Fifty percent (50%) of the total teacher population from each school was randomly chosen. In total, 300 teachers were involved, with their names selected alphabetically. According to Borg and Gall (1971), every individual in the defined population had an equal and independent chance of being selected as a member of the sample. The researchers developed four Likert-Scale questionnaire derived from four (4) research questions of the study titled "The Computer Education Policy Framework implementation in Secondary schools was used as the main instrument for data collection. According to Kandy (2022), questionnaires are widely used to obtain information about current conditions and practices and to make inquiries concerning attitudes and opinions quickly and precisely. Aliko (2021) noted that questionnaires provided a cheap means of collecting data from a large number of populations. The four-point Likert-rating scale of strongly agree (SA) = 4, agree (A) = 3, Disagree (DA) = 2, Strongly Disagree (SD) = 1 were used. The questionnaire has five (5) sections: A, B, C, D and E. Section A was about the respondents' bio-data, section B contains items on research questions, the availability and adequacy of ICT facilities, section C teachers' preparedness, section D has questions on the extent of implementation policy on computer usage, while section E has questions on the impact of Computer Usage on the implementation of the computer education Policy framework. A copy of a letter by the researchers accompanied the questionnaire which assured them of confidentiality and anonymity.

The face and content validation of the instrument was by experts in Educational Technology and Information and Communication Technology (ICT) centre of the Borno State University. The various suggestions made were used to modify the instrument. The test – retest technique of the research instrument was used to gauge the clarity and relevance of the instruments. The instruments were tested in four schools and then re-tested after one week interval in the same schools which were not involved in the study. In each of the four schools selected as a pilot study, ten responses were used as raw data to obtain the correlation coefficient between the corresponding data pilot for the two times the questionnaires were administered. The researcher administered the research instrument to the respondent and the reliability index yielded a coefficient value of 0.85.

The 300 teachers in the sampled schools were administered the questionnaire after obtaining permission from the relevant school authorities. The respondents were given one hour to complete the questionnaire. Completed questionnaires were collected immediately, while incomplete ones were collected later and included in the analysis. The data collected were analyzed using descriptive statistics, including frequencies and percentages, to address the four research questions.

Results

Research Question One: What is the level of ICT facilities availability in senior secondary schools in Biu Education Zone Borno State?

Table 1: Analyses of the respondents’ responses on the availability of computer facilities in senior secondary schools In Biu Education Zone, Borno State

S/N	Items	SA	A	DA	SD	TOTAL
1.	Computer laboratory is adequately Provided in your school	60 (20%)	180 (60%)	40 (13.3%)	20 (6.6%)	300 (100%)
2.	There are enough computers/ computer Accessories in the laboratory	30 (10%)	192 (64%)	48 (16%)	30 (10%)	300 (100%)
3.	The available computers in the laboratory Are functional in my school	10 (3.3%)	22 (7.3%)	178 (59%)	90 (30%)	300 (100%)
4.	Computer textbooks are available and Adequate in my school	10 (3.3%)	21 (7%)	80 (27%)	189 (63%)	300 (100%)
5.	Number of desks and chairs in the computer laboratory are adequate in my school	28 (9%)	20 (7%)	86 (29%)	166 (55%)	300 (100%)

Table 1 above, shows that, 240 (80%) of the teachers participated in the study indicated that computer laboratories is adequately provided in their school, the table also shows that, 222 (74%) attested that there is enough computers in the laboratory in their school, while Only 78 (26%) of the teachers disagreed that, computers in their laboratories are adequate. Analysis on table also revealed that 32 (11%) of the teachers agreed that the available computers in their laboratory are functional while, 168 (89%) disagreed with the statement. Similarly, 31(10%) of the respondents accepted that there are adequate computer textbooks in their school while, 269 (90%) of them disagreed that there are adequate computer textbooks. Moreover, only 48(16%) of the teachers agreed that the number of desks and chairs are enough, while 252 of the teachers disagreed that there are enough desks and chairs in the computer laboratory.

Research Question Two: Are there enough qualified teachers to teach computer education in your secondary school? Table 2 below shows result for analysis on the adequacy of qualified computer education teachers in senior secondary schools.

Table 2: Teachers' responses on the level of teachers’ competence in the application of computer education in secondary schools In Biu education zone, Borno State

S/N	Items	SA	A	DA	SD	TOTAL
1.	Computer laboratory is adequately Provided in your school	60 (20%)	180	40	20	300 (100%)
2.	There are enough computers/ computer Accessories in the laboratory	30 (10%)	192 (64%)	48 (16%)	30 (10%)	300 (100%)
3.	The available computers in the laboratory Are functional in my school	10 (3.3%)	22 (7.3%)	178 (59%)	90 (30%)	300 (100%)
4.	Computer textbooks are available and Adequate in my school	10 (3.3%)	21 (7%)	80 (27%)	189 (63%)	300 (100%)

5.	Number of desks and chairs in the computer laboratory are adequate in my school	28 (9%)	20 (7%)	86 (29%)	166 (55%)	300 (100%)
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Table 2 above, shows that only 43(18%) of the teachers agreed that there are enough qualified computer education teachers in their schools. While, majority of them 247(82%) attested that qualified computer teachers are inadequate in their schools. The analysis on the table also revealed that 14(5%) of teachers agreed that there is a regular in-service training programme in their schools. And 286(95%) of them confirmed that in-service training and re-training is not regular in their schools. Also, from the analysis.

Table 2, only 14(5%) of the teachers agreed that computer education teachers are adequate in the school. While 284(95%) of the teachers indicate that the computer teachers are not adequate. The table also shows 266(88%) of the teachers attested that Seminar and workshop are often organized to refresh computer teacher. Only 34(11.3%) of the teacher indicate that seminar and workshops are not regularly organize to refresh teachers in the school. Similarly the analysis on the table 2 revealed that 29(10%) of the teachers agreed that their schools does not offer special ICT training programme. But majority of them 271(90%) disagreed that their schools offers ICT training programme.

Research Question Three: To what extent are computer used in teaching process in senior secondary schools in Biu education zone, Borno State?

Table 3: Teachers' responses on the extent of computer usage in teaching and learning in senior secondary schools in Biu education zone, Borno State

S/N	Items	SA	A	DA	SD	TOTAL
1.	Computers are often used in teaching and learning in my school	4 (1.3%)	28 (9.3%)	170 (56%)	68 (23%)	300 (100%)
2.	Number of hours allocated for computer studies is adequate	20 (7%)	50 (17%)	146 (48%)	81 (28%)	300 (100%)
3.	In my school, computers are used For teaching and learning only	6 (2%)	24 (8%)	169 (65%)	74 (27%)	300 (100%)
4.	Teachers need longer period of time For ICT instructions	188 (64%)	64 (21%)	38 (12%)	10 (3.3%)	300 (100%)
5.	In My school computers are used For administration purposes only	156 (52%)	84 (28%)	40 (13%)	20 (7%)	300 (100%)

Table 3 above shows that, only 32(11%) of the teachers indicates that they uses computers and accessories in their instruction. While majority of teachers, 236 representing (79%) disagreed that they used computer during instruction. The table also revealed that 20(23%) of the teachers agreed that the number of time allocated to computer studies is adequate. While 230(67%) of

them disagreed that the time allocated to computer studies is adequate. The analysis on the table also revealed that 240 (80%) of the respondents attested that computers are often used for administrative purposes, while 60 representing (20%) of them disagreed with statement. Similarly, the result in the table also revealed that, 30 (10%) of the teachers agreed that computers their school are solely for teaching and learning purposes. While majority of the 270(90%) disagreed with the question.

Research Question Four: What impact does the use of ICT in teaching has e teachers in senior secondary schools in Biu education zone, Borno State

Table 4: Result on the teachers' responses on the impact computer usage has on teachers in senior secondary schools

S/N	Items	SA	A	DA	SD	TOTAL
1.	I can operate the Computers and teach my student	10 (3.3%)	12 (4%)	162 (54%)	106 (42%)	300 (100%)
2.	I can use variety of software programs, Word processing, data base & Spreadsheets	20 (7%)	38 (12%)	144 (48%)	98 (33%)	300 (100%)
3.	I can use power point in presenting my Lesson and can create graphics	8 (2.6%)	10 (3.3%)	200 (67%)	82 (27%)	300 (100%)
4.	I can use Microsoft to teach basic Science, type my questions and other document	32 (11%)	38 (12%)	124 (41%)	108 (36%)	300 (100%)

Table 4 shows that 32 representing (7%) of the teachers participated in the study confirmed that they know how to use computer and can teach with it. Unfortunately majority of teachers 268 (93%) indicated that they cannot operate computer system alone using to teach. On the use of variety of software programs, 58(19%) attested that they can use software programs. While, 242 (81%) of the teachers accepted that they cannot use software programs. Similarly, 18 (7%) of the teachers attested that they use power point to teach students. While, 282 representing 93% of them indicated that they cannot use power point to teach lessons. Responses to item number 4, on the ability of using Microsoft to typed questions and other documents, 60 (23%) of the y teachers indicated that they can use Microsoft word to typed questions and other documents. While, 232 (77%) of them disagreed with the statement.

Discussion

The study assessed the Implementation of Computer Education policy in senior secondary school of Biu education zone, Borno State, Nigeria. The study raised four (4) research questions and two (2) null hypotheses. The finding of the study based on research question one on the implementation of computer education policy in senior secondary school in Biu education zone, Borno State revealed that computers infrastructures are grossly inadequate in most of the

schools under review. This could be as a result of inadequate funding of the schools by the government. This result confirmed the findings of Sola (2022), which observed that 75% of teacher respondents acknowledged the non-availability of computer infrastructures in schools. The finding of this study collaborates with that of Jibrin (2022), the result further reveals that there was no significant difference between public and private 1 secondary schools sampled for this study, in the availability of computers and ICT infrastructures. This might be as a result of poor funding of these schools by the government, and lack of support and commitment on the part of state government.

The second finding revealed that, majority of the respondent agreed that there 2 are inadequate qualified computer teachers in their schools. This lack of enough qualified computer teachers might not be unconnected with the non-inclusion of ICT in teachers training programs in schools curriculum at all level of education in Nigeria. And again the finding might be the reason for poor implementation of computer education in secondary schools in Biu education zone. The result is in support to the study of Bukaliya and Mubaka (2011), on factors militating against the introduction of computer education in secondary schools revealed that majority of schools lacks qualified computer teachers the third finding indicated that, majority of teachers representing 79% agreed that computers are not used in classroom teaching. This finding might not be unconnected with non-availabilities of computers and infrastructures on one hand and lack of service training in the sampled schools both public and private on another. The implication is that most of the teachers are still tied to their old method of chalk and talk, the practice which will make them lag behind in ICT oriented society. The finding concurs with Aduwa-Ogiegbaen and Iyamu (2005), in their study on the extent of computer usage in secondary schools, found that the computer is not part of classroom technology in more than 90% of Nigeria public schools.

The fourth finding revealed that majority of the teacher respondents (93%) agreed that they cannot use computer in their teaching. Hence, the ICT usage has not impacted them to use the valuable innovation in education. This finding is in with a study by Maboyaje (2015), found that many teachers are still not fully ICT literary despite the apparent benefits ICT has for education.

Conclusion

Based on the findings of the research it was concluded that the implementation of ICT policy in senior secondary school has not been successful as expected and there were a number of challenges facing effective implementation of ICT in schools in Biu education zone, Borno State. These challenges included: few computers and computer infrastructure, insufficient internet connectivity, power unreliability and lack of sufficient qualified computer teachers as stipulated in ICT policy document to enhance effective implementation. The study also concluded that, there is no significance between public and private secondary schools on the availability and22 computer usage in teaching process.

Recommendations

Based on the findings of the study and the following recommendations were made:

1. Government in collaboration with donor agencies should provide sufficient ICT equipment for effective and efficient instruction in schools.
2. Budgetary provision should be made to Ministry of Education and schools to develop teachers' capacity in computer usage.
3. Government at all should implement computer usage policies and monitor it to ensure adherence and effectiveness in Senior Secondary Schools.
4. Government should Maximizing the impact of computer usage through strategic ICT integration into curricula and administrative processes.

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