
Information and Communication Technology (ICT) Implementation in Secondary Schools in Okigwe Education Zone of Imo State

By

ADIAHA MICHAEL MMADUABUCHI, Ph.D
*Department of Agricultural Science,
Alvan Ikoku Federal College of Education, Owerri,
Imo State.*

DOROTHY O. ALUGBUO, Ph.D
*Imo State University, Owerri,
Imo State.*

And

PEACE C. ONUOHA
*Imo State University, Owerri,
Imo State.*

Abstract

Information and communication technology (ICT) in developing countries like Nigeria is believed to be an effective way to improve the population's life and well-being when fully adopted in the education sector. However, there are some challenges which the developing world faces in its bid to adopt ICT in the education sector. These challenges include among others, internet access, limitations on cost, trained staff and adequate policy. In view of the prevailing circumstances, this paper focused on the how ICT is implemented in secondary schools in Okigwe education zone I & II. The study was a survey research in which out of the sixty three public secondary schools in this area, twelve secondary schools were randomly selected for the study and nine hundred and sixty four students and teachers were also purposively selected. Five research questions were posed and the data were collected with a questionnaire. Mean and percentage frequency distribution were used in answering the research questions. The result showed that there were not

adequate ICT facilities in Okigwe education zone I & II. It was therefore recommended that adequate infrastructural facilities should be put in place in this zone for effective use of ICT in the education sector.

The increasingly important role of ICTs in education can help change the face of the sector especially at this point in time when some schools of thought feel that there is a fall in the standard of education. Aduwa-Ogiegbaen and Iyamu (2005) have observed that ICT enhances educational efficiency in general and that there is the need to adopt it to enhance the teaching and learning process in Nigerian institutions. In the mid 20th century, the role of information increased immeasurably as a result of social progress and the vigorous development in science and technology. Over the last decade, within the discourse of ‘information society’, ‘knowledge society’, ‘information economy’ and the like, it is maintained that information and knowledge play a key role in ensuring (sustainable) development. Consequently, the potential impact of Information and Communication Technologies (ICTs) on development has become a much contested issue. Debates have also emerged concerning the ‘dream’ of the pioneers of the ‘information age’ who envisaged ICTs (particularly the Internet) as the mechanism towards self-government.

Perceval and Ellington cited in Akude (2008) describe Information and communication Technology (ICT) as the application of new electronic and other technology (computers, communication satellites, fibre optics, video recording etc.) to the creation, storage, selection, transformation and distribution of information of all kinds. ICT refers to ‘the technology that enables communication and the electronic capture, processing, and transmission of Information’ (Parliamentary Office of Science and Technology 2006).

Based on the role of information and communication technology towards the transformation of the educational sector, it has been introduced at every level of the Nigerian educational system including secondary schools in Okigwe education zone of Imo state.

Statement of the Problem

When compared with developed countries, the use of ICT in education programs in developing nations is relatively limited, because underdeveloped countries face shortages of financial resources, limited internet access, lack of trained teachers, lack of proper policies, lack of qualified teachers to teach ICT in schools; lack of computers; lack of electricity; expensive computers, broken down computers; burglary; fear by the administration; fear by the teacher, lack of internet or slow connectivity; Lack of initiative by the community leaders; obsolete computers, increased moral degradation etc (Gulati 2008; Kozma 1999; Oliveira 1989; Parliamentary Office of Science and Technology 2006). Also (Ololube, Ubogu &

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Egbezor, 2007) observed that despite the keenness of some institutions of higher learning to establish effective ICT education programs, they are confronted with enormous problems that may impede the proper implementation of these programs. The most significant of these is poor ICT penetration and usage among Nigerian higher education practitioners. Almost all African countries' basic ICT infrastructures are inadequate, as a result of insufficient funds. Several cities and rural areas in Nigeria still have fluctuation in their supply of electricity which makes the implementation of ICT in education more difficult. Additionally most Nigerian educational systems do not have access to basic instructional technology facilities, which also makes the integration of instructional technology in the delivery of quality education difficult. Poor economic conditions stand as a major barrier to the implementation of ICTs in our educational systems. Even an average middle income earner cannot afford basic technological communication gadgets. Despite these setbacks and challenges, qualitative education through the use of information and communication technology is a strong focus of most governments both at the federal and state level in Nigeria. In view of the foregoing one wonders about the state of ICT implementation in Okigwe Education zone of Imo State.

Purpose of the Study

The main purpose of this study is to ascertain the level of implementation of information and communication technology policies in secondary schools in Okigwe education zone. Specifically the objectives of the study include;

1. To find out the nature of the new information and communications technology devices that are currently available in secondary schools in Okigwe education zone.
2. Ascertain the level of application of these new information and communication technologies devices in the teaching and learning processes in the classroom.
3. To ascertain the availability of adequate infrastructural facilities and basic amenities needed for the teaching and learning of information and communication technology.
4. To find out if there are teachers who are computer literate to handle the teaching of information and communication technology in the schools.
5. Find out the major hindrances in the application of information and communication technology in the schools
6. To ascertain the role of government and non-governmental agencies towards the implementation of information and communication technology in the schools.

Research Questions

In order to make comprehensive survey of the nature and extent of application of the information and communication technology devices and processes in secondary schools in Okigwe education zone of Imo State, these questions were designed to guide the study.

- a. What are the types of information and communication technology facilities that are available in the schools for classroom use?
- b. How often do teachers make use of information and communication technology devices in the teaching and learning process?
- c. What are the infrastructural facilities and basic amenities available for teaching and learning of information and communication technology in the schools?
- d. How qualified are the teachers who teaching information and communication technology in the schools?
- e. What are the major hindrances that confront secondary schools in Okigwe education zone towards the implementation of information and communication technology policies and programmes in the classroom?
- f. What is the role the government and non -governmental agencies towards the implementation of information and communication technology in the schools.

Methodology

This is a descriptive survey research. It is a survey since it involves the selection and studying of samples chosen from the secondary schools in Okigwe education zone I & II which is one of the three geo-political zones in Imo State. Other zones are Orlu and Owerri respectively. Most of the people in Okigwe zone live in rural areas and farming is their major occupation. Few are into business while others are civil servants. There are six local Government Areas in Okigwe zone, namely; Isiala Mbano, Okigwe, Onuimo(Okigwe education zone I) and Ehime Mbano, Ihitte/Uboma and Obowo L.G.A.s'(Okigwe education zone II). Okigwe zone is in the boundary between Imo state and Abia state .

The population of the study was 9,855 which include all the teachers that teach Computer Science as well as students in JSS II and SS II in the 63 secondary schools in Okigwe education zone I & II . A multi-stage sampling technique was used to select a sample of 964 as follows, 40% of the 63 secondary schools in each of the local Government Area in Okigwe the zones was used. Also 40% of 126 teachers ,20% of 3031 JSS II students, 20% of 3032 SS II students were selected.

The instrument was a 24-item structured questionnaire constructed to cover the six research questions in tandem with the objectives of the study. The instrument was validated by experts in educational technology and measurement and evaluation from Alvan Ikoku Federal College of Education Owerri before it was administered to the respondents by the researcher himself who visited all the sampled schools and students. The researcher went back on an agreed date between him and the respondents to collect the completed questionnaire.

The data was analyzed using a four point rating scale. Based on the frequencies of response from the respondents, the means for each item question will be calculated. Any mean that is 2.5 and above will be accepted which implies that the question passed will be accepted, otherwise it will be rejected.

Findings

Research Question 1

What are the types of information and communication technology facilities that are available in the schools for classroom use?

Table 1 Percentage responses of students on the availability of ICT facilities and services in secondary schools for classroom use.

ICT Facilities	Available	%	Not Available	%
Desktop computer	150	15.56	814	84.4
Laptop computer	347	36.00	617	64.00
Internet	179	18.57	785	81.43
Multimedia projector			964	100.00
Film projector			964	100.00
Television lesson			964	100.00
Radio lesson			964	100.00
Electronic bulletin board			964	100.00
Computer system			964	100.00
Teleprocessing			964	100.00
Database			964	100.00
Telephone			964	100.00
Facsimile			964	100.00
Computer software			964	100.00
Audio conferencing			964	100.00
Video conferencing			964	100.00
Satellite communication			964	100.00
Information processing tools			964	100.00
Data retrieval resources			964	100.00
Data collection and analysis			964	100.00
Games			964	100.00

From table 1 above, it could be deduced that majority of the respondents 84.44% submitted that desktop computer are not available. Only 15.56% agreed that desktop computers are available. Also, 64.00% of the respondents stated that laptop computer is not available as against the 36% that stated that laptop components are available. The internet services are not adequate as indicated by the 81.43% which stated that these services are not available. Other services like film projector, television lesson, radio lesson, facsimile, etc are totally not available as could be seen from table 1 above.

Research Question 2 How often do teachers make use of ICT devices in the teaching and learning process.

Table 2 The mean responses of teachers and students on the use of ICT devices by the teacher for instructional purposes per week

ICT Devices	Always	Often	Rarely	Not used at all	Mean	SD
Desktop computer			209	783	1.25	
Laptop computer			174	818	1.41	
Power point				964	1.00	
Internet facilities				964	1.00	
Word processing				964	1.00	
Spread sheet				964	1.00	
Graphic packages				964	1.00	
Search engines				964	1.00	
Language laboratory				964	1.00	
Telephone				964	1.00	
Electronic bulletin board				964	1.00	
Data base				964	1.00	
Telephone				964	1.00	
Radio				964	1.00	
Television				964	1.00	
Teleconferencing				964	1.00	
Teleprocessing				964	1.00	
Facsimile				964	1.00	

Table 2 above reveals that greater percentage of the available teachers that teach ICT do not make use of the few ICT facilities for their instruction. This stems from the fact that only desktop computer and laptop computer are sparingly used by the few schools that have them. Other devices like internet facilities, graphic package, electronic , etc are not used at all for instructional purposes.

Research Question 3: What are the infrastructural facilities and basic amenities available for teaching and learning of ICT

Table 3. Percentage response scores of teachers and students on Instructional facilities

Infrastructural facilities and basic amenities	Available and is used	%	Available but not used	%	Not available at all	%
Electricity	40	4.14	690	71.58	234	24.27
Computer laboratory	40	4.14	400	41.49	524	54.36
Generators	40	4.14	690	71.58	234	24.27
Computer shelves	40	4.14	401	41.60	523	54.25
Language laboratory	-		-		964	100
Internet receivers	98	10.17	300	31.12	566	58.71
Computer tables and chairs	40	4.14	400	41.49	524	54.36
Air conditioner	-		-		964	100
Electric fan	100	10.37	541	58.12	323	33.51

and basic amenities available for teaching and learning of ICT in schools.

From table 3 above, it could be observed that basic amenities and facilities like electricity from power holding, generator, electric fan are available but are not used. Other amenities like air conditioner, language laboratory are totally not available. Also such facilities like computer laboratory, computer shelves, internet receivers, computer tables and chairs are not available as evident from the high percentages of 84.36%, 54.25, 58.71, 54.36.

Research Question 4

What are the major hindrances that confront secondary schools in Okigwe education zone towards the implementation of ICT principles and programmes in the classroom?

Table 4 The mean response scores of teachers and students on the hindrances to the implementation of ICT in the classroom.

Hindrances	SA	A	D	SD	Mean
Government does not supply adequate ICT facilities	481	483			3.49
Ministry of Education do not post enough ICT teachers to schools	964				4.00
Adequate funds are not mapped out for ICT in the budget	964				4.00
Lack of finance to purchase ICT facilities	964				4.00
No security for available ICT facilities	964				4.00
Teachers teach ICT without computer and other ICT facilities	170	794			3.18
School time table has no provision for ICT					1.00
ICT lessons are theoretically based as the students are not exposed to practical.					4.00
Students lack interest in ICT					1.00
Teaching methodology adopted by the teachers affects ICT implementation					4.00
Lack of ICT facilities is a major hindrance					4.00
Lack of infrastructures hinder ICT implementation					4.00
Lack of electricity is a major ICT hindrance					4.00
High cost of ICT devices is a major hindrance					4.00

All items in table 44 above with mean of 2.5 and above are accepted, whereas those with mean below 2.5 are rejected. In the light of this assertion, it could be stated that government does not supply enough ICT facilities to schools; the ministry of education does not put adequate number of ICT teachers to schools, adequate funds are not mapped out for ICT in the budget. Also, there is the problem of finance for the purchase of ICT facilities, and the available ICT facilities are not secured. It could also be noticed that teachers teach ICT without computer and other necessary ICT gadgets. By so doing, students are not exposed to practical. Also high cost of ICT devices, electricity, lack of facilities and infrastructures as well as teachers' methodology all hinder the implementation of ICT in secondary schools in Okigwe education zone.

Research question 5

How adequate are the available ICT facilities in secondary schools in Okigwe education zone.

Table 5 The mean response scores of teachers on the adequacy of the available ICT facilities.

	ICT Facilities	Very adequate	Adequate	Inadequate	Grossly inadequate	Mean
1	Desktop computer		3	10	16	1.55
2	Laptop computer		4	12	13	1.69
3	Internet		2	8	18	1.45
4	Multimedia projector				29	1.00
5	Film projector				29	1.00
6	Television lesson				29	1.00
7	Radio lesson				29	1.00
8	Electronic bulletin board				29	1.00
9	Computer system				29	1.00
10	Teleprocessing				29	1.00
11	Database				29	1.00
12	Telephone				29	1.00
13	Facsimile				29	1.00
14	Computer software				29	v1.00
15	Audio conferencing				29	1.00
16	Video conferencing				29	1.00
17	Satelite communication				29	1.00
18	Information processing tools				29	1.00
19	Data retrieved resources				29	1.00
20	Data collection and analysis				29	1.00

Total = 22.69

Average mean = 22.69/21

= 1.08

The result obtained in table 5 above reveals that the available facilities (desktop computer, lap top computer, internet facilities) are not adequate as could be seen from the mean response scores in table 5 above.

Conclusion

Based on the findings of this study, the following conclusions were drawn.

- (i) Majority of the ICT teachers are professionally unqualified and are part-time teachers.
- (ii) Only desk top computer, laptop computer and internet facilities are available and are grossly inadequate. Other ICT facilities are not available.
- (iii) The relevant ICT facilities are not used by the teachers in the teaching and learning process.
- (iv) The population of the teachers compared to students are too poor such that the students are not adequately exposed.

Recommendations

In view of the findings of the research, the researcher made the following recommendations.

- (i) It is necessary that more qualified ICT teachers be recruited into the school system in tandem with the population of the students for proper and adequate transfer of knowledge.
- (ii) Government as a matter of necessity should grant study leave with pay to the unqualified teachers to upgrade their knowledge for improved productivity.
- (iii) The basic infrastructural facilities and basic amenities for teaching and learning of ICT should be provided in schools. The government should give more subventions to the ministry of education to enable her purchase relevant ICT facilities and basic amenities needed for effective teaching and learning.
- (iv) The school immediate community, through P.T.A. and individual philanthropists, NGO'S should be encouraged to contribute in the provision of these ICT facilities.
- (v) ICT teachers on part-time basis should be made permanent teachers and should be sponsored to attend seminars, workshops and conferences to enable them improve on their competences in the utilization of current ICT gadgets invoke.
- (vi) Adequate security should be provided to safeguard the available ICT facilities in most schools and additional befitting structures with necessary security gadgets should be constructed in all the secondary schools for effective ICT implementation.

(vii) It is essential to state that ICT facilities should be made available and accessible too to the students to enable them have full advantage of the technology driven education.

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