



An Assessment of ICT Literacy Among Secondary School Students in a Rural Area of Kwara State, Nigeria: A Community Advocacy Approach

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Abstract: In recent times, public schools in Nigeria have enjoyed some benefits in terms of deployment of Information and Communication Technologies (ICTs), but no constant attention and continuous interest is paid to fill the digital gap between schools in the rural and urban areas. The contribution of private sectors in the education system has elevated the use of ICT in both private and public schools especially in the urban areas of Nigeria. However, schools in rural areas have not benefitted much in this area. This research used community advocacy program referred to as COBES (Community Based Experience Scheme) to assess ICT literacy of secondary school students in a rural area of Kwara State, Nigeria. The study employed mixed research approach that combined both quantitative and qualitative data collection strategies. The initial findings of the study revealed low level of ICT skills among secondary school students in the rural area. Although, majority of the students who served as the respondents claimed they have computer teacher and can operate computer systems, yet, the study showed that there is dearth of ICT facilities for hands-on training. Nevertheless, through the one week long COBES program, the findings from three focus group discussion conducted at the end of the COBES program showed that students' interest to use ICT increased and majority of them expressed their willingness to continue interacting with computer and internet facilities. Findings further revealed that the main reason for low ICT skills is the lack of ICT facilities for teaching and learning. The study recommended that ICT project implementation

should be uniform in all public schools in Nigeria, irrespective of whether it is located in the urban or rural area, adequate and skilled computer studies teachers should be made available and government should put in place mechanisms that will ensure proper maintenance of the ICT facilities

Keywords: COBES, Education, ICT, learning, Secondary, Training

1. Introduction

In a global economy that is driven by Information and Communication Technology (ICT), knowledge of ICT has become an important aspect of information literacy campaign. Moreover, ICT application in the education sector has revolutionized the methods of teaching and learning. Teaching and learning in the ICT driven environment is no longer restricted to the four wall of classroom as students and teachers can now communicate and interact in the virtual classroom. This advancement in technology has equally bridged the digital divide between information rich and poor society. According to Tinio (2002) ICT has the potentials of increasing relevance and quality of education in developing countries and the field of education has been affected by ICTs, which have indisputably affected teaching, learning, and research. A lot of research works have proven the benefits of ICTs to the quality of education (Yusuf, 2005), and as noted by Yuen and Tsui (2010), “the speed at which information can travel using vehicles provided by ICT and the vast storage space available, makes possible the free flow of information and knowledge”. Any institution of learning that fails to

embrace the evolution of ICT for teaching and learning will find it difficult to operate and compete favorably with their peers in the age of e-learning.

In response to the global influence of ICT on education, governments and nongovernmental organizations in developing countries are now investing on educational technologies with a view to bridge digital divide and enhance teaching and learning in the new information society. In line with this global development, the Federal Government of Nigeria, in the National Policy on Education (Federal Republic of Nigeria, 2004), recognizes the prominent role of ICTs in the modern world, and has integrated ICTs into education in Nigeria. For example, in 1987, the Federal Government, at the 32nd Ministerial Council Meeting of the National Council on Education, inaugurated a National Committee on Computer Education, which was charged with the responsibility of establishing a National Policy on Computer Education. The general objectives of the policy are to ensure that the general populace appreciates the impact of information and computer technology on today’s society; and to enable the present

generation of school children at all levels to appreciate the potentials of the computer and to enable them to be able to use the computer in various aspects of life and later occupations (Jegade and Owolabi, 2003).

In order to ensure full implementation of the National Policy on Computer Education in Nigeria, the state governments introduced computer education and literacy into secondary schools in 1997 (Bada, Ajibade & Ojedokun, 2009, and Adomi & Kpangban, 2010). The general objectives of the computer literacy programme are to: bring about computer literacy in each state in Nigeria; develop the use of computers as a teaching tool in all subject areas and to familiarize students with the use of computer technology; enable the present generation of school children at the secondary school level to appreciate the potentials of the computer and to be able to utilize the computer in various aspects of life and later occupations; and to expose teachers and students to the latest scientific knowledge and skills.

Another major effort towards improving ICT integration in the Nigeria society was the 2001 National Policy on Information Technology, tagged "Use IT" (Yusuf, 2007). As a result of these steps, over the years, education sector has witness tremendous improvement in the area of application of ICT for teaching and

learning in all facets of education systems (i.e. from tertiary to primary level). However, the situations in schools especially secondary and primary schools in rural areas have not been fully addressed. More than a decade ago, Jegede and Owolabi (2003) compares Nigeria National Computer Policy of 1987 with the existing school practice and found that computer education in Nigeria was limited to Federal Unity Schools and was scarcely offered in any of the state secondary schools which constitute more than 80% of Nigerian schools. However, the contribution of private sectors in education system has elevated the use of ICT in both private and public schools especially in the urban areas of Nigeria. For example, in a recent study of level of computer literacy in private and public secondary school students in an urban area of Nigeria, Osunwusi and Abifarin (2013) found that private secondary school students have access to, and use, the computer in higher measures than public secondary school students. No statistically significant differences were found in terms of access to the internet. Given the situation with the schools in the urban areas, knowledge of the state of computer literacy in rural areas remained under-researched. Are the schools in the rural areas implementing the National Policy on Education in Nigeria? And how are the school children in the rural

areas responding to this new technology in their environment? These call for a research of this nature for better understanding of how students in the rural areas of Nigeria are responding to the technology of the new information society.

The main objective of this study is to find out how secondary school students in the rural area of Nigeria are responding to the computer literacy program of the Nigerian Government. The specific objectives of the study are to:

- (1) Assess awareness of ICT among secondary school students in rural area of Nigeria;
- (2) Find out the level of ICT implementation in Secondary Schools in rural areas of Nigeria;
- (3) Assess level of Computer literacy of secondary school students in rural areas of Nigeria; and
- (4) Determine the perception of secondary school students on the usage of ICT for teaching and learning

2. Literature Review

ICT has been defined in various ways by several authors. According to Ogunsola (2005), ICT “is an electronic based system of information transmission, reception, processing and retrieval, which has drastically changed the way we think, the way we live and the environment in which we live”. In another dimension, Onyije and

Opara (2013) defined ICT as tools or resources that could be used to process, store, perverse, retrieve and disseminate information with ease. Another definition of ICT in the Oxford Advanced Learners’ Dictionary is an electronic media used in processing, analyzing, storing and sending out information. All these definitions of ICT have been captured in the description of ICT as advanced by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as:

the tools and the processes to access, retrieve, store, organise, manipulate, produce, present and exchange information by electronic and other automated means. These include hardware, software and telecommunications in the forms of personal computers, scanners, digital cameras, phones, faxes, modems, CD and DVD players and recorders, digitised video, radio and TV programmes, database programmes and multimedia programmes” (UNESCO Bangkok, 2003, p.75, in Anderson, 2005 p.5).

The application of ICT in education has affected teaching and learning in various dimensions. ICT is said to have the potentials of being used to meet the learning needs of individual students, promote equality of educational opportunities; offer high quality

learning materials, increase self-efficacy and independence of learning among students, and improve teachers' professional development (Abolade and Yusuf, 2005). Its application has also resulted into shift in the methods of teaching and learning in the 21st century classrooms. Zhang (2005) notes that "this shift which has been driven by the plethora of new information and communication devices now increasingly available to students in school and at home, each of which offers new affordances to teachers and students alike for improving student achievement and for meeting the demand for 21st century skills." Studies have identified various types of ICTs available for teaching and learning. According to Tella et al. (2007), ICTs available in classrooms include simple tool-based applications such as word processors, online repositories of scientific data, primary historical documents, handheld computers, closed-circuit television channels, and two-way distance learning classrooms. To successfully operate in the new e-learning environment, knowledge of how these identified ICT tools become necessary for both teachers and students. Lau and Sim (2008) reported that despite the apparent benefits of the use of ICT for educational purpose, studies showed that in many cases, the learning potential of ICT is deprived as many teachers and

students are still not fully ICT literate.

The benefits derivable from the application 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 there is correlation between ICT skills and its application for teaching and learning. And this is why Oni and Adebisi (2011) posits that a person without the working knowledge of computers in the modern technological world, 'will not be able to go far in life as far as his career options are concerned. This is because nothing is there in this world that does not work on computer technology. This is one of the objectives which the Nigerian National Policy on Computer Education of 1978 was designed to address. The employers of labor in the ICT driven societies are now demanding ICT literacy as one of the requirements for employment. Even, employees have realized that computer and other ICT facilities can enhance efficiency and equally can be a threat to their jobs, and the only way to enhance job security is to become computer literate (Adomi and Kpangban, 2010). Studies have shown that using ICT in education enables students to take a more active role in their learning rather than a passive observer or listener (Balanskat, Blamire, & Kefala, 2006; Tella et al. 2007). Given the role knowledge of ICT literacy

plays in the new information society, understanding how National Policy on Computer Education has been implemented in secondary schools in the rural areas of Nigeria become relevant.

Studies on the application and usage of ICT in the Nigeria educational systems have been more concentrated on schools in the urban areas (Tella et al., 2007; Osunwusi, & Abifarin, 2013). Majority of reports on the state of ICT in the rural areas only identified lack of ICT without insight as to how the situation affects students in the rural communities. According to Adomi (2006), ICT development and application are not well established in rural areas of Nigeria because of poor information infrastructure. Suithwood (2004) assert that more than 40 percent of the population of Africa is in areas not covered by telecom services and by implication schools located in such areas will experience ICT connectivity problems.

3. Research Methodology

This research followed mixed methodology approach combining both quantitative and qualitative research approaches. In order to fully understand ICT literacy of secondary school students in the rural areas of Nigeria, the researchers used a community advocacy program called COBES (Community Based Experience and Scheme) to assess ICT literacy of secondary school students in rural

areas of Kwara State, Nigeria. The COBES programme involves using ICT to provide solutions to the information needs of secondary school students in the rural communities. The researchers who were the coordinators of the COBES one week long program first employed quantitative approach to examine ICT level of students before the commencement of the COBES training program. The one week training program exposed the participants to various functional areas of computer as they were put through different applications using laptop computer, modem and internet facilities provided by Faculty of Communication and Information Sciences of the University of Ilorin as part of the COBES programme. At the end of the COBES a focus group was carried out to gauge the level of ICT awareness and skills learnt during the week long COBES program since a focus group organized immediately after a training program could be used to gather initial feedback on the success of the program (Greenbaum, 1993).

3.1 Research Setting

Ballah secondary school, kwara state, Nigeria was purposefully selected as the case study for the study. The selection of the school was based on the fact that it is a boarding school, located in a rural community, and serving educational needs of people living in that rural community.

3.2 Data Collection

Two sets of assessments were carried out across students from junior secondary school (JSS) 1 – 3 and senior secondary school (SSS) 1- 2. The SSS 3 students were excluded from the study because as at the time of this research they were writing their mock examination in preparation for their final year examination. A total of 300 copies of research questionnaire were administered across the five classes (JSS1-3 and SSS1-2). Out of 300 copies of the research questionnaire administered 276 were completed of which 57.6% (159) of the response were male and 42.4% (117) female. The first assessment used a questionnaire that tested awareness and ICT skills. The second assessment which was preceded by the one week COBES programme which involved ICT training, was designed to get feedback and as a

means for comparing the perception and attitude of the students before and after the COBES programme. To achieve this, three focus group discussions were organized for selected students across all the levels and three sets of interview were granted to two teachers and the head of the school.

4. Results

The results from the questionnaire and the focus group discussion are presented and discussed in the following sub-sections.

4.1 Findings from Questionnaire

Table 1 gives the summary of the copies of the questionnaire administered to the various classes of respondents. Table 2 - 4, shows the data analysis of the questionnaire that measured ICT awareness, skills, and usage among students in the Ballah secondary school.

Table 1: Distribution of respondents by class

CLASS	RESPONDENTS	PERCENTAGE
JSS1	66	23.9
JSS2	45	16.3
JSS3	66	23.9
SSS1	43	15.6
SSS2	56	20.3
TOTAL	276	100.0

Table one shows the distribution of respondents across all the five (5) classes that participated in the study. The majority of the respondents were from the JSS 1

and 3 classes with 23.9% each. This was followed by SSS 2 with 20.3% and JSS 2 and SSS1 with 16.3% and 15.6% respectively.

Table 2: Awareness of Computer

Items	Yes	%	No	%
I have seen a computer system before the COBE S program	252	91.3	24	8.7
I have heard of the internet before the COBES program	142	51.4	134	48.6
My school has computer teacher	255	92.4	21	7.6
My school has computer system (s) for students	250	90.6	26	9.4
My school has internet facilities	20	7.2	256	92.8

Table 2 above shows that majority of respondents (91.3%) have seen computer before the COBES program. This large awareness shows that computer has become household name that cut across all field of human endeavor. This can also be attributed to the fact that the school has computer system as claimed by majority of the respondents ((90.6%). Despite the large awareness of computer

system, the level of awareness of internet (51.4%) is low compare to the awareness of computer systems. The awareness can also be attributed to the school curriculum that makes provision for computer as compulsory subject for all students. This is reflected in the respondents' response on computer studies teacher as majority (90.6%) indicated that they have computer studies teacher.

Table 3: Use of computer system and the Internet

Items	Yes	%	No	%
I know how to operate computer system	218	79.0	58	21.0
I know how to use computer to send e-mail	72	26.0	204	74.0
I use computer for playing games	105	38.0	171	62.0
I use internet for solving my school work/assignments	56	20.3	220	79.7
I know how to use computer for power point	54	19.6	222	80.4
I am competent in using Microsoft word for typing	134	48.6	142	51.4
I am competent in using excel	20	7.2	256	92.8

In table 3 above, more than half of the respondents (79.0%) claimed they know how to operate a computer system, but only few

26.0% and 20.0% indicated that they use computer for sending e-mail and solving school assignments respectively. Although

majority 62.0% indicated that they use computer for playing game, the analysis still shows that few respondents know how to use computer applications for example excel attracted a very low response of 7.2% followed by power point

with 19.6% and Microsoft word with 48.6%. These low levels of computer skills could be attributed to the lack of functional computer system as observed during the COBES program.

Table 4: Frequency of Internet usage

	Frequency	Percentage (%)
Daily	5	1.8
Weekly	11	4.0
Monthly	43	15.6
Occasionally	21	7.6
Not at all	196	71.0

On the frequency of Internet usage, table 4 reveals that majority of the respondents (71.0%) do not use the Internet at all. Only 15.6% used internet on monthly basis, while 7.6% used it occasionally. One major factor that accounts for low level of usage is the lack of facilities to access Internet in the school.

4.2 Findings from Focus Group Discussion

This section presents findings from the focus group discussion at the end of the one week COBES program at the Ballah secondary school. Three sets of focus group discussions were conducted and the summary of the findings are presented below.

The COBES program which was preceded with a survey of ICT competence of the students in the Ballah secondary school provided the researchers with background information on the level of ICT

competence of the participants for the COBES program. Given the findings generated from the survey, the COBES one week program focused on various applications of computer with practical that exposed the participants to different software packages and their applications. It was observed that the students were not competent in using computer as majorities were unable to operate computer, this revelation contradicted the high claimed competence of computer operation by majority of the respondents during initial survey as indicated in table 3 above. The training exercises was conducted by 300 level students across the faculty of Communication and information sciences (CIS) that comprises Computer science, mass communication, information and Communication Science, Library and Information Science and Telecommunication Science. The researchers monitored the exercise

and observed the participants responses to the training. The computers and internet facilities used for the COBES program were provided by the faculty of CIS. At the end of the One week program three sets of focus group discussion were organized as means of getting the feedback from the students on their opinion perception and attitude to ICT literacy.

The participants for the focus group discussion were selected based on their responses during the initial survey across all the five classes. Three focus group discussions were organized at the end of the COBES training program. Each focus group comprises of ten (10) participants purposively drawn from all the classes based on the following criteria:

1. Those who cannot operate computer before the COBES program
2. Those who do not have computer at home
3. Those who claimed they have computer at home

The focus group was based on low level of ICT skills as identified from the initial survey and how the COBES program has improved the level of ICT skills of the participants. The following are the summary of the findings generated from the three focus group discussions.

ICT Skills

Majority of the participants in the three focus group discussions

disclosed that they thought they knew how to use the computer, but the COBES program exposed their ignorance. However, through the program they have learnt different computer software packages that will help them in their educational carriers. The poor ICT literacy was attributed to lack of functional ICT facilities and inadequate computer studies teachers that could cater for all the school students.

Contribution of COBES program

The students welcomed and appreciated the COBES program and considered it as a very good tool for improving ICT skills of students in rural communities. The approach used in the program to impact ICT skills was equally commended and the participants expressed their willingness to continue interacting with computer packages learnt from the COBES program.

5. Discussion and Recommendations

The study has established the fact that schools in the rural areas are not given equal treatment like what is obtainable in schools located in the urban areas in terms of provision of ICT facilities. This corroborates the findings of Jegede and Owolabi (2003) that there is disparity in ICT implementation in Unity schools and schools located in rural areas. Efforts geared towards integration of ICTs into the secondary school system especially schools in rural areas have not had

much impact as shown from the findings of this study. Despite the roles ICTs have been found to play in education, secondary schools in the rural areas of Nigeria are yet to extensively adopt them for teaching and learning.

The poor ICT literacy can be attributed to lack of functional facilities and inadequate computer studies teachers that can cater for all the school students. This assertion supports the finding of a recent study by Osunwusi and Abifarin (2013), who found that private secondary school students who have access to computer system use the systems in higher measures than public secondary school students who lack adequate computer facilities. The COBES program has proved that when the required facilities that can aid ICT learning are provided for school students in the rural communities, they will be willing to improve their ICT skills and continue to interact with computer packages learnt from the COBES program. It is obvious that the efforts made towards integration of ICTs into the secondary school system have not had much impact in rural areas because of so many factors which include inadequate ICT equipments, lack of maintenance of even the available ICT equipment and inadequate skill teachers to impart the necessary skills. In order to ensure that ICTs are adequately provided, maintained and used especially in secondary

schools in the rural areas of Nigeria, the following efforts should be taken into consideration:

- i. Government should ensure that ICT policy statements are translated into reality. An ICT policy implementation commission should be created, funded and given the power to provide ICT facilities in the schools and monitor their use.
- ii. Secondary schools in rural areas should not be left out of benefiting from ICT projects.
- iii. Efforts should be made by Ministry of Education (at Federal and State levels) to ensure that adequate and skilled computer studies teachers are posted to all government secondary irrespective of whether it is located in the rural or urban area.
- iv. Special programs/workshop should be organized for all school students and teachers from time to time as this will assist them in improving their ICT skills.

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