REALITIES OF INTEGRATING INFORMATION AND COMMUNICATION TECHNOLOGY IN NIGERIAN SECONDARY SCHOOLS: EXPERIENCE FROM A LOCAL GOVERNMENT IN OGUN STATE, NIGERIA.

Adediran, Elizabeth Morenikeji Titilayo

Department of Curriculum and Educational Technology, Federal College of Education, Abeokuta, Nigeria
Email: elizabethadediran@yahoo.com

Abstract

The Nigerian National policy for Information Technology asserts that information technology is the bedrock for national survival and development. The National policy on secondary education also recognizes the prominent role of information technology in knowledge advancement and therefore noted that Government shall provide necessary infrastructure and training for the integration of IT in the school system. The main factors of successful integration of ICT in education comprise the teacher and computer facilities. Taking field experience as a window of assessment on the level of IT integration to education, this paper reported a study on Abeokuta South Local Government of Ogun State. The report showed that the number of teachers who have basic skill in use of IT is low. Moreover, just a few of the schools have enough numbers of computers to serve the school population; this is even not to talk about how accessible they could be to both students and teachers. The case of internet facility provision is not even anything to write home about. This indicates that the schools are largely unprepared to use IT facilities in instruction. Also, there is still much to be done to achieve the goal of IT integration in Nigeria secondary education.

Keywords: Integrating Information and Communication; Nigerian Secondary Schools; Nigerian Experience

Introduction

The Nigerian National policy for Information Technology define Information Technology to include any equipment or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement control, display, switching, interchange, transmission or reception of data or information. The National policy on education on secondary education also recognizes the prominent role of information technology in knowledge advancement and therefore noted that Government shall provide necessary infrastructure and training for the integration of IT in the school system. In relation to this, the first mission statement of the national policy for information technology is to use IT for education. It further has as one of the general objectives to integrate IT into the mainstream of education and training. This will undoubtedly be an innovation in the Nigerian educational system. Nigeria’s IT policy’s vision statement is to make Nigeria an IT capable country in Africa and a key player in the information society by the year 2005, using it as the engine for sustainable development and global competitiveness. In her education, Nigeria presently runs the 9-3-4 educational system which is broadly divided to three segments of basic education, senior secondary and higher education. Here, the primary and the junior part of secondary education is a compulsion for all children as embedded in the universal basic education policy which is a derivative of the global Education for All (EFA). In line with the global trend on information technology application in education, the government of Nigeria has integrated its educational use in the general objectives of the national policy on information technology. The sixteenth objective as stated in the policy is ‘to integrate IT into the mainstream of education and training’. This also explains why the National policy on Education (2004) specifically stated on secondary education that ‘government shall provide...
necessary infrastructure and training for the integration of ICT in the school system in recognition of the role of ICT in advancing knowledge and skill in the modern world. This indicates that the Nigerian society also recognizes the importance of IT in its secondary education. According to the World Bank (2009), secondary education is now being recognized as the cornerstone of educational systems. This is because secondary education has the peculiarities of being at the same time terminal and preparatory.

**Secondary School Education and Information Technology**

Nigeria presently runs an educational system which is broadly divided into three segments of basic education, senior secondary and higher education. Here, the primary and the junior part of secondary education otherwise referred to as basic education, is a compulsion for all children as embedded in the universal basic education policy which is a derivative of the global Education for All (EFA). It is also important to note that secondary education remains an important part of this educational system. According to the World Bank (2009), secondary education is now being recognized as the cornerstone of educational systems. This is because secondary education has the peculiarities of being at the same time terminal and preparatory, compulsory and post-compulsory. It stands as the crucial link between primary schooling, tertiary education, and the labor market. It also has the ability to connect the different destinations and to take young people where they want to go in life.

Secondary education serves to encourage broad, personal development and social education of all students; to create active, independent learners; and to recognize and make use of individual differences among students. According to the National Policy on Education (2004), the broad goal of secondary education is to prepare the individual for useful living within the society and higher education. Secondary education therefore provides a comprehensive programme for the youth which equips him with basic skills in academic as well as prepares him for coping with the problems of life (Adenjumo, 1984, Net Industries, 2009) In relation to use of IT in education, it is an obvious fact that in this modern society, technology is fast changing the instructional process in education. For instance, Ogunsola-Bandele (2002), observed that computer skills enable classroom teachers to join in the ICT drive. This ultimately helps students to have increased self-confidence and full self esteem when using ICT. Therefore, educators and researchers alike in Nigeria need to respond to the responsibility of popularizing Information and communication technology ICT education in tertiary institutions so as to provide quality science, technology and mathematics in the 21st century (Ukwungwu, 2004). In line with this, Temi (2003), observed that the success of IT in Nigerian classrooms would depend on the extent to which the needs of teacher trainees are met during preparation. This obviously calls to mind the challenges of integrating information technology into teacher education.

**Major factors of ICT Integration: Skilled Manpower and Facilities**

The main factors of successful integration of ICT in education comprise the teacher and computer facilities. The role of the teacher in any instructional situation is that of a communicator. Therefore, the teacher's role in the integration of computers in schools is obviously very important, and every educational reform effort should take into consideration teachers’ knowledge, skills, beliefs, and attitudes (Cuban, 2001). Beliefs and attitudes play a fundamental role in the way that teachers will deal with ICT in the classroom. In other words, dealing effectively with ICT, relates not only to knowledge of the capability, limitations, applications, and implications of ICT, but also to individuals’ attitudes and perceptions regarding IT tools. The effective implementation of IT depends upon users’ having positive attitudes towards it. This shows that actual use of IT depends
largely on teachers’ personal feelings, skills, and attitudes towards IT. This implies that teachers who have positive attitudes towards IT and perceive it to be useful in promoting learning will evidently integrate IT in their classroom more easily than others.

Whatever new technologies introduced into the educational system cannot be done effectively without carrying the teachers along. Teachers are at the heart of any successful innovation in schools without their collaboration, noting worthwhile can be achieved. However, in many schools, teachers are not skilled enough to make use of IT in instruction. Their initial training, which quite often the only one they have received, generally does not include the use of contemporary technologies for teaching. At the same time, most teachers are reluctant to invest their own time and resources in developing themselves in the area of information technology. Some of the teachers are not even convinced of the necessity of IT as a tool in instruction delivery. Such teachers need to be convinced, well motivated and made to appreciate the effect of the policy on national goals. Some studies have investigated the preparedness and competence of Nigerian teacher in ICT. Yusuf (2005) investigated the perceived self efficacy of teachers in the implementation of computer education in Nigeria secondary schools. The findings revealed that most of the teachers in Federal Government Colleges do not have the needed experience in the use of computer. Moreover, majority of the teachers – both male and female- do not have needed competence in basic computer operations. They also do not have needed skills and knowledge in the use of common computer software. The study further revealed no significant difference between male and female teachers use of common computer software.

In the same vein, Njoku (2006) investigated the awareness and use of ICT by teachers in selected secondary schools in Owerri, Nigeria. 177 teachers participated in the study. While 164 (92.7%) of the respondents claimed to be computer literate and eight (4.5%) admitted that they were not computer literate; five (2.8%) of the respondents did not disclose their computer literacy status. This shows that ICT awareness and use among teachers in secondary schools in Nigeria is generally low.

Facilities here include provision of functional computers and internet facilities. It is important to note that access to the computer is a very important factor in readiness to and use of IT in instruction. According to Kabonoki (2008) access to computers and hence to the Internet remains a significant factor in its use in instruction by teachers. In Africa generally, there is low access to basic equipment, low internet connectivity, low participation in the development of IT equipment as well as low involvement in software development (Yusuf, 2005). Some years back in Nigeria, more than 95% of public primary and secondary schools were yet to embrace the use of computers while most classroom activities were still dominated by chalkboard and textbooks (Egunjobi, 2003). Possible reasons for this have been identified to range from low level of computer literacy, lack of inner drive, lack of interest and lack of personal access to incessant power failures, poor organization of resources, poor quality hardware and inappropriate software (Becta, 2004). However, this situation seems to have improved a bit as observations revealed that more and more people are having access to information technology on a daily basis.

Some Efforts at Integration of ICT to Education

The computer is becoming a commonplace item most especially in the urban areas while the telecommunication agencies like MTN, MULTILINKS and STARCOMMS provide Internet access to their subscribers. And this does not leave out the teachers too. In the same vein, the Federal Government of Nigeria also embarked on a child a laptop project some years ago. Though the programme could not be sustained, it is worthy to note that it was an attempt made to achieve the integration of IT to educational instruction. In relation to training of teachers, introduction to computer science is presently a compulsory course to be taken in Colleges of Education at both 100 and 200 levels. The import of this is to expose these teachers in training to the use of information
technology. This is also in realization of the fact that IT has become an indispensable tool in educational instruction in the contemporary age.

Moreover, it is becoming a reality that the process of admission in to colleges of education now involves the use of information technology, where students are expected to register for JAMB exams online, check results online and even register for courses after admission online. Thus, it is obvious that such students may not escape the use of information technology. However, observations have shown that a larger percentage of incoming student teachers to colleges of education lack adequate IT skills as majority of these students pay for the services of cybercafé owners to assist them in all the processes involved in their admission.

It is also important to recognize the efforts by some Colleges of Education to create IT centres where students could be exposed to the use of IT. Some college libraries have also automated and make provisions for electronic libraries where IT is used to access and retrieve information. In the same vein, the NCCE made it compulsory for all academic staff to be computer literate by making it a requirement for promotion. It will also be an understatement to say that online retrieval of information is becoming a daily part of library services in academic settings.

The Realities: The Ogun State experience
A study was carried out recently by the author with a view to investigate the level of availability of ICT facilities and the ICT competence of teachers in Abeokuta south local government of Ogun state. The study investigated the ICT basic skills possessed by the teachers in the local government. Abeokuta South Local Government was purposely chosen because it comprise a major urban part of the state capital and as such expected to be at the forefront of ICT application to education.

The study
Abeokuta South Local Government has a total of twenty senior and twenty junior public Secondary schools. All these schools were included in the sample for the study. The instrument of observation and questionnaire were used to collect data for the study. A total of five hundred and twenty \( (520) \) teachers were randomly selected as respondents to the questionnaire, but a total of four hundred and seventy \( (470) \) participants returned the completed questionnaire. This forms 90.4\% return rate. All these respondents participated in the basic skill aspect of the study. The 470 comprise of 238 teachers from senior school and 232 teachers from junior school. The participants at the junior school included 66\% (28.4\%) male and 166\% (71.5\%) female. While the participants at the senior school included 121\% (50.8\%) male and 117\% (49.2\%) female. This gives a total of 187\% (39.8\%) male and 283\% (60.2\%) female.

Basic Skills of Participants
The specialization of the participants at the senior school level revealed that 45\% (18.9\%) out of the 238 participants are from the Arts, 52\% (21.9\%) are from Commercial while 89\% (37.4\%) are from the sciences. This also includes 13 specialists in Computer Science. This forms 14.6\% of the participants from the science. Moreover, 25\% (10.5\%) are from Social Science while 27\% (11.3\%) have Vocational based background. It is therefore obvious that the highest percentage of the participants have Science background. At the Junior Secondary School level, while 58\% (25\%) and 31\% (13.4\%) of the participants are from Arts and Commercial areas of specialization respectively. 63\% (27.1\%) are from the Science while 37\% (16\%) and 43\% (18.5\%) are from the Social Science and Vocational. It is also obvious that the highest percentage at this level is also from the Science background.

In all 103\% (21.9\%) are from the Arts, 83\% (17.6\%) are from the Commercial, 152\% (32.3\%) are from the Science. In the same vein, 62\% (13.1\%) are from Social Science while 70\% (14.9\%) are from the Vocational background. It is clear here that the highest percentage (32.3\%) of the participants have Science background while (13.1\%) have Social Science background. Out of the participants with Science background 29\% (19\%) are with computer background. However, the measurement of skill in
this study is based on practical performance by the participants in word processing, spreadsheet and PowerPoint applications as well as the use of internet. Analysis of performance of the participants in these specific areas shows that only 93(40.1%) of teachers in junior school and 103(43.2%) of teachers in senior school are able to do word processing. In the same vein, only 35(15.1%) of the teachers in the junior school and 42(17.%) of teachers in senior school are able to perform in spreadsheet. Moreover, only 30(12.9%) of teachers in junior school and 28(11.8%) of teachers in senior could make use of PowerPoint presentation. However, 58(25%) of teachers in junior and 75(31%) of teachers in senior are able to use the internet. This is evident in table 1

<table>
<thead>
<tr>
<th>School</th>
<th>Total no of teachers</th>
<th>Total no of COMPUTER Science teachers</th>
<th>No of Trs with Cop Skills</th>
<th>WP</th>
<th>%</th>
<th>SS</th>
<th>%</th>
<th>PP</th>
<th>%</th>
<th>Internet</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Junior N=20</td>
<td>232</td>
<td>16</td>
<td>93</td>
<td>40</td>
<td>35</td>
<td>15.1</td>
<td>30</td>
<td>12.9</td>
<td>58</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Senior N=20</td>
<td>238</td>
<td>13</td>
<td>103</td>
<td>43.2</td>
<td>42</td>
<td>17</td>
<td>28</td>
<td>11.8</td>
<td>75</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>total</td>
<td>470</td>
<td>29</td>
<td>196</td>
<td>41.7</td>
<td>77</td>
<td>16.4</td>
<td>58</td>
<td>12.3</td>
<td>133</td>
<td>28.3</td>
<td></td>
</tr>
</tbody>
</table>

It is also evident from the table that 196 (41.7%) of the total participants are able to demonstrate basic skills in word processing, 77(16.4%) are able to demonstrate skills in spreadsheet while 58(12.3%) and 133(28.3%) are able to demonstrate skills in PowerPoint presentation and the internet.

**Policy Implications**

This shows that a very low percentage of teachers have skill in PowerPoint presentation. This also applies to spreadsheet application where only (16.4%) could perform. It could also be observed that the most common basic skill in IT possessed by the teachers is in word processing. This is also followed at a distance by skill in the use of internet. It could therefore be concluded that the popular basic skill in use of IT among the teachers are word processing and Internet use. More importantly, the implication of this is that the number of participants who have basic skill in use of ICT among the teachers is low and this may not augur well for a nation that seeks to integrate ICT to education.

**Availability of IT facilities in the Schools**

The findings of the study on the facility readiness of secondary schools in Abeokuta South Local Government also serve as an eye opener on the availability of ICT facilities in the schools. Facilities here include provision of functional computers and internet facilities. It is important to note that access to the computer is a very important factor in readiness to and use of IT in instruction. According to Kabonoki (2008) access to computers and hence to the Internet remains a significant factor in its use in instruction by teachers. The findings presented in table 2 below shows that in all the 19 junior secondary schools there were only 131 functional computers while the 18 secondary schools have a total of 125 functional computers. This gives an average of seven computers to each of the schools. However, only one each of the senior and junior schools has internet facility.

<table>
<thead>
<tr>
<th>School</th>
<th>COMPUTER NO OF FUNCTIONAL</th>
<th>Average FUNCTIONAL</th>
</tr>
</thead>
</table>
As a matter of facts, it is obvious that while only one senior secondary school has up to 38 functional computers, another has 30. In the same vein only three have between six and ten while majority of the schools have between one and three functional computers. only one junior and two senior schools could boast of 30 functional computers. One each has between eleven and 20 while 20 junior and 17 of the senior schools have up to 10 computers. This is obvious from table 3.

### Table 3: Number of Schools and Range of functional computers

<table>
<thead>
<tr>
<th>School</th>
<th>1-10 Computers</th>
<th>11-20 Computers</th>
<th>21-30 Computers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Junior N=20</td>
<td>20</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Senior N=20</td>
<td>17</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

A further analysis even shows that 12 each of the junior and senior schools have between one and three functional computers while only one out of the 20 junior schools, has 33 functional computers. In the same vein one has a total number of 11 while three have10 functional computers respectively. Four of the schools have between six and eight while the rest have between one and three functional computers.

**Policy Implications**

The implication of this is that just a few of the schools have enough numbers of computers to serve the school population; this is even not to talk about how accessible they could be to both students and teachers. The case of internet facility provision is not even anything to write home about.

**Conclusion**

It will not be out of place to conclude that the schools involved in this study are largely unprepared to use IT facilities in instruction. With a low number of teachers having basic skill in use of IT and just a few of the schools having enough numbers of computers to serve the school population, there is still a great deal to be done in achieving the goal of IT integration in secondary education. In addition, this is the picture of what is happening in urban schools, the situation in the rural areas is likely to be worse.

**Recommendation**

In the light of this it is therefore recommended that

1. Governments should provide mass and functional IT facilities all schools both in the rural and urban areas. These should also be made accessible to both students teachers.
2. Arrangements should also be made for mass training of teachers on the use of IT in instructional delivery. This will help to expose the teachers to the appropriate skills in use of IT.
3. To achieve this, a special budgeting should be done for secondary education at both federal and state levels. This should also be targeted towards provision of IT facilities and capacity building of teachers in IT only.

References
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